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10 YEAR  
IMPROVEMENT  
PROGRAM  
1990-1999

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**VOLUME III  
TECHNICAL REFERENCE**

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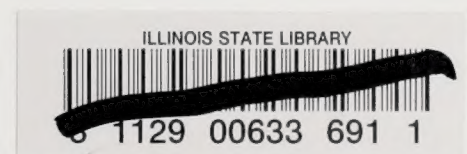





**10 YEAR  
IMPROVEMENT  
PROGRAM  
1990-1999**

**VOLUME III  
TECHNICAL REFERENCE**

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10 YEAR IMPROVEMENT PROGRAM - 1990-1999

VOLUME III - TECHNICAL REFERENCE

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5.0 TRAFFIC ANALYSIS

Prepared By:

ENVIRODYNE ENGINEERS, INC.

January, 1990





I388.12

III 2

V3

C3

## 10 YEAR IMPROVEMENT PROGRAM - 1990-1999

### VOLUME III - TECHNICAL REFERENCE

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##### 5.0 TRAFFIC ANALYSIS





## 1.0 INTRODUCTION

This Technical Reference is the third volume of the 10 Year Improvement Program - 1990-1999. It contains backup material used in preparation of cost estimates and scopes, such as the basic cost and quantity assumptions, copies of the traffic information and projections generated by the Illinois State Toll Highway Authority's traffic engineer, and other background computations performed during the study in 1989.

The purpose of this document is solely to show Authority technical staff the source material behind cost estimates and relative project priorities.

CHAPTER 2 contains the cost estimates, based on estimate unit prices derived from prior ISTHA construction contracts or past estimates (for the CIP study, for example). Prices from 1988 and 1989 were inflated by 5% per year to 1990 estimate levels. All construction and project cost estimates are given in Volumes I and II at 1990 levels. Assuming there is some inflation in construction costs through the 1990s, these estimates will have to be reevaluated and inflated, perhaps by the ratios in ENGINEERING NEWS RECORD or other sources.

The EEI Structural Department prepared a preliminary analysis and cost estimate for widening the East-West Tollway bridge over the Fox River. Quantities from that analysis are included in this chapter. Back-up, correspondence or phone memos is included for ice detectors, message signs and AVI.

Note the distinction between construction costs and project costs. The project cost includes engineering (13%) and contingencies (12%), and so is 25% above the estimated construction cost for the various components of a study section.

Work shown in CHAPTER 2 was entered in Volume II's Project Scoping Summary Sheets, LOTUS spreadsheets which calculated separate project costs.





CHAPTER 3 is a printout of the project ledger spreadsheet which arrayed the project costs calculated on the Scoping Summary Sheets, as well as the existing CI and MI projects still under design. The annual expenditures presented in Volume I were calculated on this spreadsheet. Below the annual totals for all projects, net revenues estimated to be available by the Authority's traffic engineer are shown. These, along with the annual expenditures, are used to predict cash flow throughout the study period.

CHAPTER 4 shows the straight-line interpolation of existing and projected Volume/Capacity (V/C) ratios on the existing system (i.e., with none of the 10-Year Program expansion projects or CI projects in place). This chapter also includes the plotted summaries of this analysis.

CHAPTER 5 contains a number of unpublished system traffic analyses prepared by Wilbur Smith Associates (WSA) during 1989. These figures and LOS indicators were the basis of expansion project deliniation. The August 5, 1989 submission was used to initially determine where expansion projects should be entered in the 10 Year Program. Transmissions on September 26 and 28 show the results when WSA re-ran their model with our proposed widening program in place, and also looked at impacts on the Toll Plazas. This data was referenced in the Volume I of the 10 Year Program and in the interpolation of projected V/C ratios.





## 2.0 COST ESTIMATES





# ENVIRODYNE ENGINEERS

Job No. 3328 Project: 10 YR PROGRAM  
 Subject: PROJECT SCOPING - COSTS  
FOR ESTIMATING Sheet 1 of       
 By: POM Date: 8-7-89 Ck:      Date:     


## CONCRETE PAVEMENT (SY)

\$32.75 - \$41.44 USED IN OBP STUDY / CIP STUDY (1989/1988)

\$23 - \$27 AUG BID PRICES ON N-S LARGE VOL CONSTRUCTION

FOR RAMPS & SMALLER CONTRACTS, USE \$41.44 x 1.1 (INFLATION)  
 = \$45.58/SY ✓

FOR LARGE CONTRACTS (≈ 10,000 SY)

WITH DUAL-LANE OR GREATER PAVING, USE \$27 x 1.1 (INFLATION)

ADD 12" SUBGRADE & SUBBASE @ \$6.67/SY: = \$36.37/SY ✓

## BITUMINOUS OVERLAY (SY)

ASSUME 3" OVERLAY: USE \$30/TON x 1.1 (INF.) = \$33.00/TON

$\frac{33.00}{2000} = 0.0165/16 \times 2018/16 \times 9 \text{ sf/sy} \times 3" = \underline{\underline{\$8.91/SY}}$  ✓

## BITUMINOUS REMOVAL (SY)

BID PRICES RANGE FROM \$1.60-\$2.00 FOR LARGE REHAIR PROJECTS

USE \$2 x 1.1 = \$2.20/SY ✓

## 11' BITUMINOUS SHOULDER (L.F.)

\$23.80 (CIP/OBP) x 1.1 = \$26.20/LF ✓

## EMBANKMENT (CY)

\$8.40 (CIP/OBP) x 1.1 = \$9.25/CY ✓

## EXCAVATION (CY)

\$6.30 (CIP/OBP) x 1.1 = \$7.00/CY ✓

## CONCRETE MEDIAN BARRIER (L.F.)

\$52.50 (CIP/OBP) x 1.1 = \$58.00/LF ✓

## FULL DEPTH BASE REPAIR - TYPE I (SY)

\$52 - \$60 x 1.1 SAY = \$65.00/LF SY ✓







# ENVIRODYNE ENGINEERS

Job No. 3328 Project: 10 YR PROGRAM  
Subject: PROJECT SCOPING - COSTS FOR ESTIMATES  
By: POM Date: 8-7-89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_  
Sheet 2 of \_\_\_\_\_


## RETAINING WALLS (S.F. OF FACE):

~~\$30.00/SF HAS BEEN EST. PRICE FOR R.E. WALL - 1.1 = \$33.00/SF~~

VOID 8-22

NO - SEE SHEET 4

## STRUCTURES (S.F. OF DECK AREA)

~~\$65 - \$75 HAS BEEN BID RANGE FOR TYPICAL HIGHWAY STRUCTURES:~~

USE \$75.00/SF;

FOR STAGED CONST, \$100.00/SF CHECKED - OK

REHAB, 75.00/SF

## INTERCHANGES (L.S.)

~~IN LIEU OF MORE DETAILED ANALYSIS, USE:~~

~~MODIFICATIONS - \$3,000,000 OR \$4,000,000~~

VOID 8-22 - SEE SHEET 5

~~NEW - \$5,000,000~~







### 4 LANE REHAB:

$$2 \times 25' / 9 \text{ SF/SY} \times [(2.20 + 8.91) + 0.15(65.00)] = \$115.89 / \text{LF} \times 1.05 (\text{MISC \& MOT}) = \$121.68$$

*[Signature]*

### 6 LANE REHAB:

$$2 \times (25 + 12) / 9 \times [(2.20 + 8.91) + 0.15(65.00)] = \$171.52 / \text{LF} \times 1.05 (\text{MISC \& MOT}) = \$180.09$$

### WIDEN 4 TO 6 LANES:

$$1.5 \text{ CY EXC} / \text{L.F. (GRS 65-370)} \times 7.00 = \$10.50$$

$$1.6 \text{ CY FILL} / \text{L.F. ( " )} \times 9.25 = \$14.80$$

$$24 \text{ SF} / 9 \text{ SF/SY (RCC PAVE)} \times 29.70 = \$79.20$$

$$\frac{13'}{11'} (\text{INSIDE SHOULDERS } 73" \text{ WIDE}) \times 2 \times 26.20 = \$61.93$$

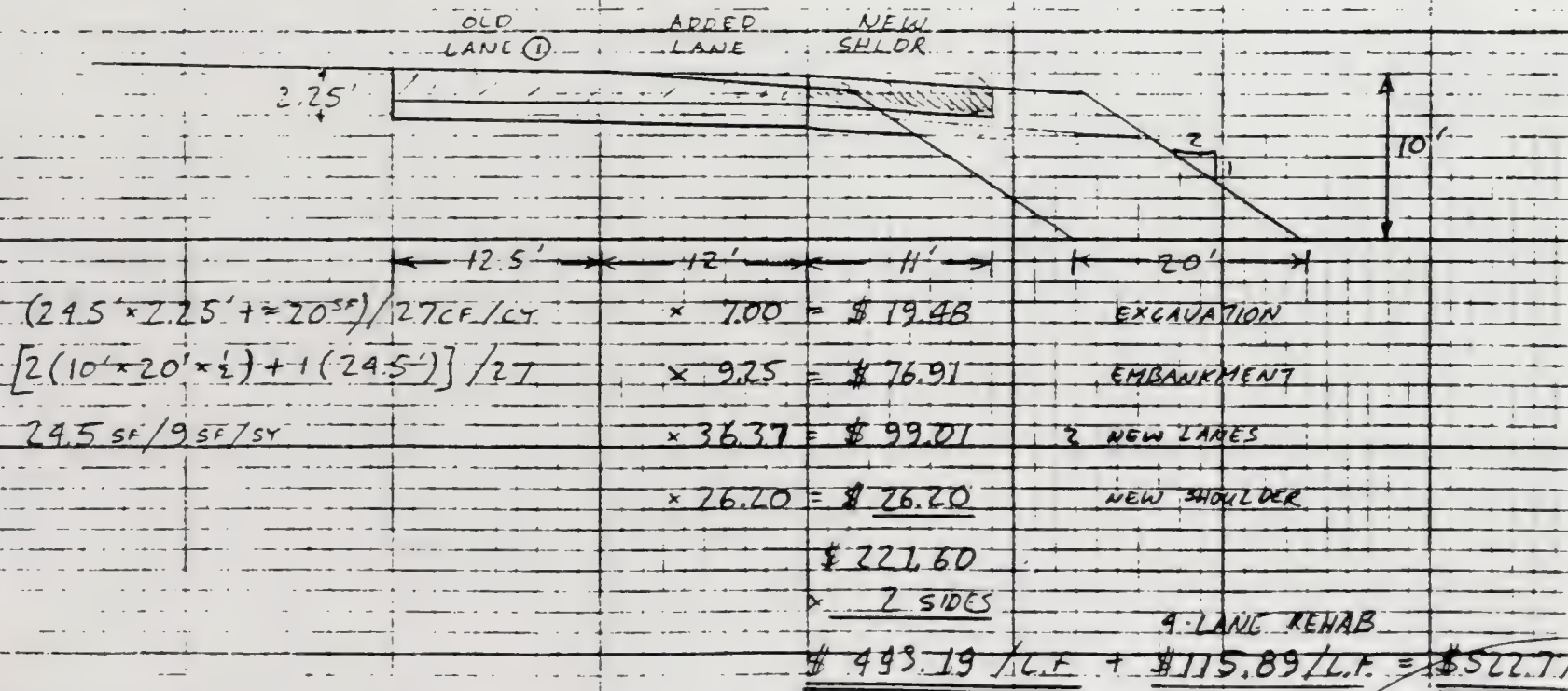
$$\text{RCC BARRIER} = \$58.00$$

$$4 \text{ LANE REHAB} = \$115.89$$

$$\text{DRAINAGE} = \$36.00$$

$$\$376.32 \times 1.05 (\text{MISC \& MOT}) = \$395.14$$

### WIDEN 6 TO 8 LANES: ASSUME REPLACEMENT OF LANE NO. 1 INCLUDED:



8-16: ADD 2x600D.8/POLE/200LF = \$360/LF. LIGHTING!

SEE SHEET 3A

\$582.7







### 4 LANE + SHOULDER REHAB:

MISC + MOT

$$\left[ (2.20 + 8.91 + 0.15(65.00)) \times 2 \times 25/9 + (2.20 + 8.91) \times 2 \times (11 + 4) \right] \times 1.05 = \$160.37/LF$$

OVERLAY B-REPAIR WIDTH OVERLAY SHOULDER

### WIDEN 4 TO 6 LANES:

15 CY EX /LF (GREBS-370)	7.00	=	10.50
16 CY FILL /LF ( " )	9.25		14.80
24 SF /9 (RCC PAVE)	29.20		79.20
(13'11") x 2 (INSIDE SHLDR)	26.20		61.93
(RCC BARRIER)			58.00
(4 LANE SPTOR REHAB LESS M + MOT)			152.92
(DRAINAGE)			36.00

413.35

(MISC + MOT) 1.05

\$434.02

= \$439.02/

### 6 LANE REHAB

$$\left[ (2.20 + 8.91 + 0.15(65.00)) \times 2 \times (25 + 12)/9 + (2.20 + 8.91) \times 2 \times (11 + 13)/9 \right]$$

OVERLAY B-REPAIR WIDTH OVERLAY SHOULDER

x 1.05

MISC + MOT

= \$242.31/L

### WIDEN 6 TO 8 LANES

EXCAVATION, LANES, SHLDR = \$ 194.69

x 2

\$ 289.38

4 LANE REHAB (NO SHLDR) \$ 115.89

LIGHTING \$ 60.00

\$ 465.27

(MISC + MOT) x 1.05

\$ 488.53

PLUS EMBANKMENT

= \$ 642.35/L

OR RET. WALL &amp; DRAINAGE \$ 532.53/L

+ WALL

(450.90 + 38.53 SURGRASS/GRASS)







DETERMINATION OF FACTORS FOR REPLACEMENT OR  
 NEW RAMP AND MAINLINE PLAZA FACILITIES;  
 RE: 8-23-89 CALC. SHEET DATA

RAMPS  
AUTOMATIC LANES ONLY (EXCLUDES BUILDINGS)

1990 ESTIMATED COSTS (X1000)

CONTRACT: CIP-612

~~84.4~~

\*; EXTREMES NOT

CIP-614

101.9

USED DUE TO WIDE

CIP-617

109.8

VARIATION OF

CIP-615

214.9\*

COSTS,

$211.7 \div 2 = 105.85 (X1000) / \text{EACH LANE}$

MAINLINE PLAZAS & COMBINED RAMP AUTO/MANUAL

1990 ESTIMATED COSTS (X1000)

CONTRACT:

CRE-85-343

496.2

CIP-613

307.2

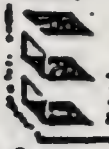
CIP-620

371.1

$1174.5 / 3 = 391.5 (X1000) / \text{EA. LANE}$

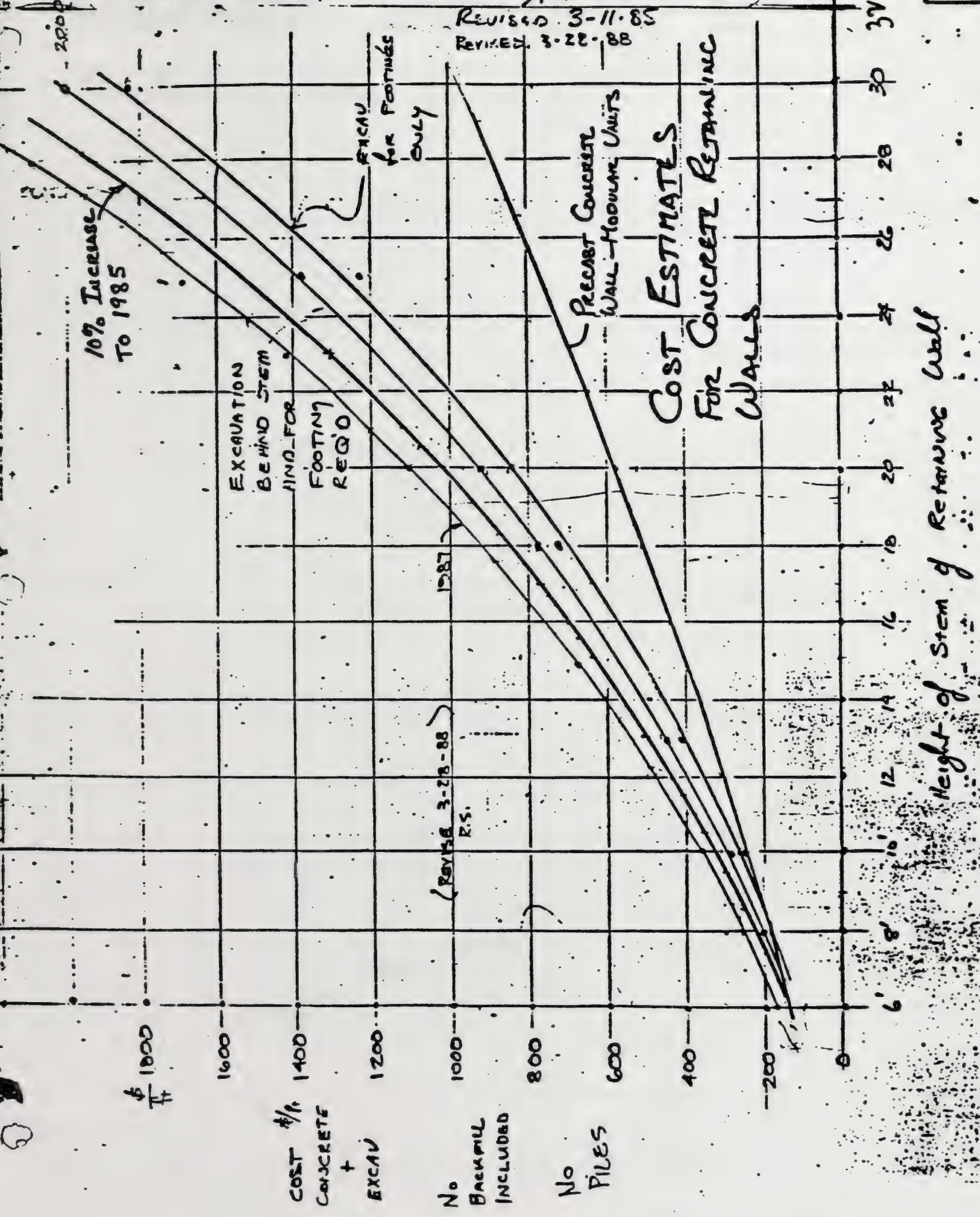






ENVIRODYNE  
ENGINEERS

Job No. 1747 Project 1000000  
Subject RETAINING WALL COSTS  
By: MAO Date: 5/5/83 Sheet 3 of 3  
Revised 3-11-85  
REVISED 3-28-88

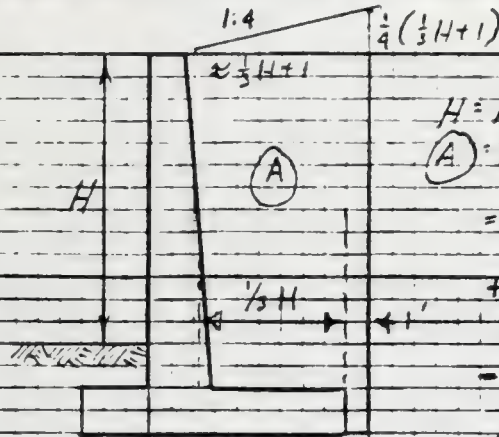







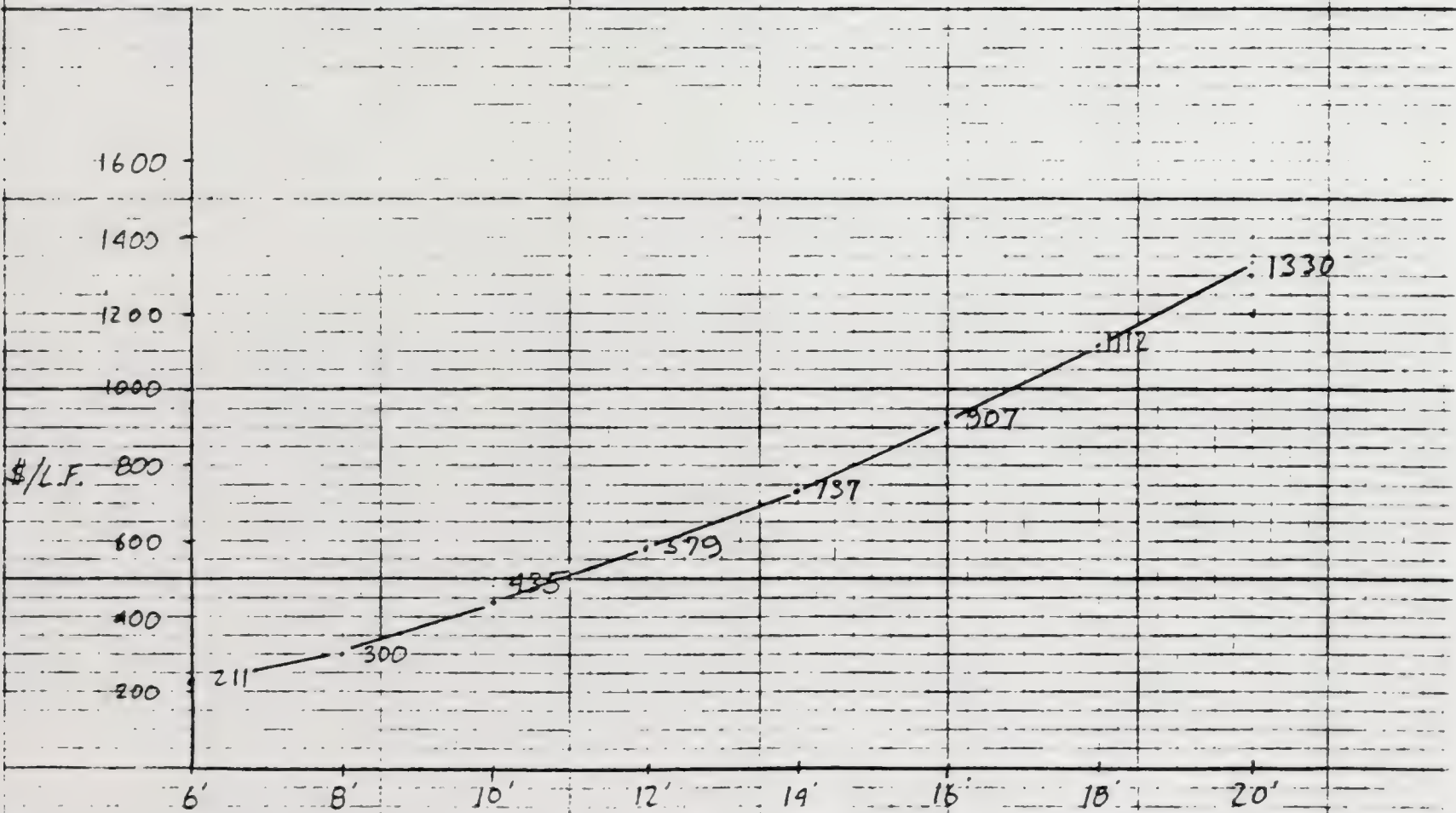


# RCC RETAINING WALLS



$H = \text{height of stem}$   
 $(A) = \text{area of fill (sf)}$   
 $= \frac{1}{2}H(H+2) + 1(H+4)$   
 $+ \frac{1}{2}((\frac{1}{3}H+1) \times \frac{1}{4}(\frac{1}{3}H+1))$   
 $= \frac{1}{2}H^2 + \frac{2}{3}H + H + 4$   
 $+ \frac{1}{8}(\frac{1}{3}H^2 + \frac{2}{3}H + 1)$   
 $= .33H^2 + .67H + H + 4$   
 $+ .014H^2 + .084H + .125$   
 $= .034H^2 + 1.75H + 4.$

IN CY/CF: (        ) / 27  
 $\times \$10/\text{CY}: ( \u{      } ) \times 10/27.$



1983 MAD COSTS UP TO 1990 + BACKFILL  
 NO PILES - NO COUNTERFORTS, ETC.







ENVIRODYNE  
ENGINEERS

Job No. 3328 Project: 56701  
Subject: COST ESTIMATE BACKUP  
TOLL PLAZAS, OASES, M. YARD Sheet        of         
By:        Date:        Ck:        Date:       


FROM IRVING PARK (IN CIP ESTIMATE): 0.38 M/LANE

RAMP PLAZAS: \$1.2 M / W I.M.S. 2A.

RECONSTRUCTION:

FOR T.Y.P. STUDY, USE \$391.5 K / LANE MANUAL OR AUTOMATIC,  
AND \$1 M / LANE ADDED MAINLINE BARRIERS

LESSER REPAIRS:

\$100K / LANE + \$50K / SITE

OASIS BUILDING & GROUNDS - SAY \$500K

MAINTENANCE YARD REPLACEMENT -

\$4.5 M







# ENVIRODYNE ENGINEERS

Job No. 3328 Project: 56701  
Subject: COST ESTIMATE BACKUP  
Sheet 5 of       
By: POM Date: 8-22-09 Ck:      Date:     


CUT SECTIONS: ASSUME GO TO CLOSED DRAINAGE SYSTEM.  
WHEN WIDENING 6-8 LANES: (CIP/DBP: \$44/LF.)

FILL SECTIONS: UP TO H=10' - USE EARTHWORK EST. FOR 10' FILL.  
10'-20' - ASSUME RET. WALL CONSTRUCTION.

CLOSE MEDIAN (WIDEN 4-6 LANES): ADD DRAINAGE SYSTEM (18" RCCP = \$25/LF  
+6¢/ LF FOR INLETS  
+5¢/ LF FOR OUTLETS  
= \$36/LF.

## INTERCHANGES

MODIFICATION FOR WIDENING  
OUTSIDE

\$ 750,000/lane to Tollway

WOULD INCLUDE REHAB PLUS  
REALIGNMENT TO ALLOW FOR  
OUTSIDE LANE.

REHAB

\$ 300,000/lane to Tollway

WOULD INCLUDE PAVE REHAB,  
GR, LIGHT & SIGN REPAIR,  
FENCING, PLAZA APPROACHES  
(OTHER THAN PLAZA REHAB COST)







# ENVIRODYNE ENGINEERS

Job No. 3328 Project: 56701  
 Subject: 755-100  
 By: PDM Date: 8-22-89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_  
 Sheet 1 of \_\_\_\_\_



L = 27,700 TO MARK YARDS RR

①  $\times 450.40$

\$12,476,080

FILL = 74,193

$\times 9.25$

② \$686,285

WALL: 184' H: 12'  $\times 265' =$  ③

\$375  $\times$  265 = \$99,375

ASSUME NO ROCK CUT, BUT CLOSED DRAINAGE & BARRIER

\$49/LF (DRAINAGE)

2  $\times$  \$25/LF (CONC SIDE BARRIER)

\$94/LF

\$250.40

\$250.40/LF  $\times [(177+00 - 159+00) + (222+50 - 193+50)] =$  ④ \$2,232,040

⑤ 335+00 - 294+00 = 4,100 - ADD 7 LANE:

$\frac{1}{2}$  (WIDEN COST):  $0.5 (450.40) =$  \$225.20

$\frac{1}{2}$  ( $\frac{4}{3}$  REPAIR 6 LANE COST):  $0.5 (1.33) (242.31) =$  \$161.14

\$386.34

$\times 4,100.00$

\$1,583,978

⑥ ADD 8 NEW OVERHEAD SIGN STRUCTURES ⑦ \$150,000 = \$1,200,000

12,476,080

686,285

99,375

2,232,040

1,583,978

1,200,000

18,277,758

ADD 236,959 8/25







# ENVIRODYNE ENGINEERS

Job No. 3328 Project: 56701  
Subject: 755-100  
By: POM Date: 8-22-89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_  
Sheet 2 of \_\_\_\_\_



$$101-102 \quad 1208.83 (12' \times 2 \times 75 + 116 \times 25) = \$5,681,501$$

WIDEN R/HAB

$$103-104 \quad 176.15 ( \quad + 125 \times 25 ) = \$867,539$$

$$105 \quad 215.0 (70' \times 25) = \$376,250 \text{ (SQUEEZE)}$$

$$107 \quad 189.17 (25 \times 25) = \$118,231 \text{ (SQUEEZE)}$$

$$109 \quad 255.0 (70 \times 25) = \$446,250 \text{ (SQUEEZE)}$$

$$111-112 \quad 363.0 (15 \times 2 \times 100 + 115 \times 25) = \$2,132,625$$

$$113- \quad 188.2 (35 \times 25) = \$164,500 \text{ (SQUEEZE)}$$

$$115 \quad 280 (94 \times 100) = \$2,440,000$$

$$117-118 \quad 213.2 (12' \times 2 \times 75 + 115 \times 25) = \$996,710$$

$$119-120 \quad 1760 (15 \times 2 \times 100 + 110 \times 25) = \$10,120,000$$

$$121-122 \quad 79 (12 \times 75 + 130 \times 25) = \$327,850$$

$$123 \quad 284.3 (30 \times 25) = \$213,225$$







# ENVIRODYNE ENGINEERS

Job No. 3328 Project: 56701  
Subject: TSS-200

By: POM Date: 8-25-89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_


USE FRM COST ESTIMATE FOR MOST ITEMS,  
ADD REPAIR TO OTHER STRUCTURES IN SECTION;

$$125: 226.67 \times 87 \times 25 = \$464,674$$

$$127-127A: 0$$

52-344

plazas

$$159th Street: 4(750,000) + (1.15)(2,881,000) - 212,000 = 6,100,000$$

$$1-57: 8 \text{ ramps } (1,500,000) = 12,000,000$$

$$PLAZA 40: \$391.5 \times 2 \text{ lanes } (1 \text{ man-auto}) = 4 \text{ ramps} = \$3,132,000$$











**ENVIRODYNE  
ENGINEERS**

Job No. \_\_\_\_\_ Project: 10 Yr. Program  
 Subject: Roadway Rehabilitation  
TSS-300 Sheet 1 of 3  
 By: RA Date: 8/14/89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_



TSS-300

FROM M.P. 7.7 to M.P. 17.7  
 10 Miles = 52,800 ft

Pavement

Exist. surf. removal;  
 37' wide surf. rev. (one direction)

$$\left[ (52,800)(37 \times 2) \right] \div 9 = 434,133.3$$

$$@ \$2.20 \text{ S.Y.} = \$ 955,093$$

New overlay (3");

$$434,133.3 @ \$8.91 \text{ S.Y.} = \$ 3,868,128$$

Shoulder Removal;

(11' & 12.5' wide)

$$\left[ (52,800)(22+25) \right] \div 9 = 275,733 \text{ S.Y.}$$

$$@ \$2.20 \text{ S.Y.} = \$ 606,613$$

New shoulder;

(11' wide)

$$(52,800 \times 2) = 105,600 \text{ L.F.}$$

$$@ \$26.2 \text{ L.F.} = \$ 2,766,720$$

(12.5' wide)

$$105,600 \text{ L.F.}$$

$$@ \$29.7 \text{ L.F.} = \$ 3,144,000$$

Press. Relief Joints;

5' long @ 1,500'

$$(52,800 \div 1,500) \times 2 = 70.4 \text{ say } 71$$

$$(71 \times 5 \times 37) \div 9 = 1,459.4 \text{ S.Y.}$$

$$@ \$65.0 \text{ S.Y.} = \$ 94,864$$

Sub-Total \$11,435,4







**ENVIRODYNE  
ENGINEERS**

Job No. \_\_\_\_\_ Project: 10 yr Program  
 Subject: Roadway Rehabilitation  
755-300 Sheet 2 of 3  
 By: RA Date: 8/14/89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_



### Interchanges

#### Interchange Modifications

© I-1 Rte 50/127th St.

at \$4,000,000 ea.

\$4,000,000

### Structures

lets use \$25 rehab - see Summary Sheet

Bridge # / Loc.	Deck Area ft <sup>2</sup>	Constr. Cost \$/ft <sup>2</sup>	Cost
#129 147th St.	4,374	75.0	328,050
130 147th St.	4,374	75.0	328,050
131 Kedzie Ave.	4,386	75.0	328,950
132 Kedzie Ave.	4,386	75.0	328,950
133 C.R.I & P. RR	18,518	75.0	1,388,850
134 C.R.I & P. RR	18,518	75.0	1,388,850
135 Rexford Rd	4,114	75.0	308,550
136 Rexford Rd.	4,114	75.0	308,550
137 Crawford Rd.	9,343	75.0	700,725
138 Crawford Rd.	9,343	75.0	700,725
139 Midlothian Tpke.	4,057	100.0	405,700
140 Midlothian Tpke.	4,057	100.0	405,700
141 135th St	4,426	100.0	442,600
142 135th St.	4,426	100.0	442,600
143 Cal-Sag Canal	24,412	100.0	2,441,200
144 Cal-Sag Canal	24,412	100.0	2,441,200
145 131st St	4,352	75.0	326,400
146 131st St.	4,352	75.0	326,400
147 127th St.	27,800	75.0	2,085,000
149 127th St. (Ramp)	9,560	100.0	956,000
151 Cicero Ave.	18,000	100.0	1,800,000
155 Ridgeland Ave.	7,719	75.0	578,925
156 Ridgeland Ave.	7,719	75.0	578,925

6.6 7-1-1 \$19,340,90.







# ENVIRODYNE ENGINEERS

Job No. \_\_\_\_\_ Project: 10 Yr. Program  
Subject: Roadway Rehabilitation  
TSS-300 Sheet 3 of 3  
By: RA Date: 8/14/89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_



157 115th St.	4,703	75.0	352,725
158 115th St.	4,703	75.0	352,725
159 111th St.	4,200	75.0	315,000
160 111th St.	4,200	75.0	315,000
161 107th St.	4,084	75.0	306,300
162 107th St.	4,084	75.0	306,300
163 Wabash RR.	14,113	75.0	1,058,475
164 Wabash RR.	14,113	75.0	1,058,475
165 Southwest Hwy.	3,964	100.0	396,400
166 Southwest Hwy.	3,964	100.0	396,400
167 Harlem Ave.	13,922	75.0	1,044,150
168 Harlem Ave.	13,848	75.0	1,038,600

Sub-Total \$ 6,940,550

Total \$ 26,281,450

Roadway \$ 11,435,418

Interchanges \$ 4,000,000

Structures \$ 26,281,450

\$ 41,716,868











10 YEAR PROGRAM  
PROJECT SCOPING SUMMARY SHEET  
SEGMENT TSS-300

RA-  
I USED RA'S STRUCTURE ESTIMATES  
& MULTIPLIED BY 1/3 OR 1/4 FOR REHAB  
COST @ \$25/S.F. 12,790,000

ROADWAY: -----

? 11,435,418

INTERCHANGES: IL50/127th St.

? 1,800,000

TOTAL INTERCHANGES: -----

? 4,000,000

STRUCTURES: STRUCTURE No. 129-130  
STRUCTURE No. 131-132  
STRUCTURE No. 133-134  
STRUCTURE No. 135-136  
STRUCTURE No. 137-138  
STRUCTURE No. 139-140  
STRUCTURE No. 141-142  
STRUCTURE No. 143-144  
STRUCTURE No. 145-146  
STRUCTURE No. 147  
STRUCTURE No. 149  
STRUCTURE No. 151  
STRUCTURE No. 155-156  
STRUCTURE No. 157-158  
STRUCTURE No. 159-160  
STRUCTURE No. 161-162  
STRUCTURE No. 163-164  
STRUCTURE No. 165-166  
STRUCTURE No. 167-168

? \$ 656,100  
? 657,900  
? 2,777,700  
? 617,100  
? 1,401,450  
? 811,400  
? 885,200  
? 4,882,400  
? 652,800  
? 2,085,000  
? 956,000  
? 1,800,000  
? 1,157,850  
? 705,450  
? 630,000  
? 612,600  
? 2,116,950  
? 792,800  
? 2,082,700

TOTAL STRUCTURES: -----

\$0 26,281,450

TOLL PLAZAS: (none)

\$0

MAINTENANCE: TSS-3M1 M-1 Yard

?

\$0

OASIS: (none)

\$0

TOTAL FACILITIES: -----

RIGHT OF WAY: -----

?

TOTAL: -----

\$0

CONTINGENCIES (12%) AND ENGR (13%):

\$0

PROJECT TOTAL: -----

\$0

YEAR OF NEED?

1991:?  
1992:?  
1993:?  
1994:?  
1995:?  
1996:?  
1997:?  
1998:?  
1999:?  
2000:?





**ENVIRODYNE  
ENGINEERS**

Job No. 3328 Project: 56701  
 Subject: TSS-500 MILL-LOG R.R.  
 By: PDM Date: 8-24 Sheet 1 of 1  
 Ck: \_\_\_\_\_ Date: \_\_\_\_\_



ASSUME SECTION WILL BE 4 LANES:

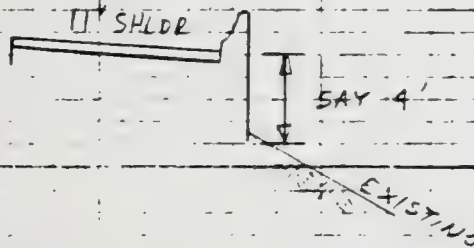
$$183-184: 57.7 \times (191+220) \times 25 + 12' (191+220) \times 100 = \underline{1,062,352}$$

$$191-192: \text{FROM 8-3 DRAFT} = \underline{78,880,000}$$

ROADWAY WIDENING:

ROADWAY IS IN HIGH FILL SECTION

ASSUME CLOSED DRAINAGE SYSTEM & SHORT WALL W/ BARRIER:



$$\text{USE L.F. COST} = 494.40$$

$$+ 2(200.0)$$

$$= \underline{890.00}$$

(T.S. IS 6' WALL FACE W/ BARRIER AND INCLUDES COST FOR JERSEY BARRIER)

$$L = 1268+00 \text{ (BEGIN MILE)}$$

$$- 1265+00 \text{ (END TSS-500)}$$

$$= 205 \text{ (L.S. 183-184)}$$

$$\underline{1,795 \text{ LF}} \times \underline{590 \text{ \$/LF}} = \underline{\underline{\$1,057,550}}$$







# ENVIRODYNE ENGINEERS

Job No 3328 Project: 56701  
 Subject: TSS- 400 500 APPROX 11/8/89  
 Sheet 1 of 2  
 By: PDM Date: 8-25-89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_



PROJECT COST ESTIMATE HAS BEEN \$4,000,000.

DOES NOT INCLUDE 4-LANE ARCHER - TSS-500 ~~ADD ALL THIS~~

169-170 : 0

171-175 & 173:  $4(96')(52.77')(25) + 4(96')(12')(100) = \$1,014,816$

177- :  $30'(290')(100) = \$870,000$

179 :  $42'(323')(25) = \$339,150$

181 :  $47'(380')(100) = \$1,526,000$

ROADWAY:

UP TO STA 1238 IN LUMP SUM PRICE

1238+00 (TSS-500, - 1236+00 = 3200 LF

FROM 1236+00 TO 1260+00: CUT SECTION - (AREAS BY APPROX TRIANGLES)

QCY	D	FILL SF	CUT SF	1268	CUT SF	FILL SF	D	QCY
		0	0	1268		260		
			0	1260		30	800'	4296
			300	1258	90	0	200'	111
(675)	100		1050	1257	80		100'	(315)
(333)	100		1050	1256	150		100'	(426)
(3611)	100		900	1255	352		100'	(1930)
(1704)	100		20	1254	264		200'	(1191)
(37)	100		0	1253	208		100'	(874)
0	100		0	1252	325		100'	(187)
(1389)	100		750	1251	400		100'	(1343)
(12315)	100		500	1250			100'	
(1074)	100		80	1249			100'	
(296)	100		80	1248			100'	
(296)	100		80	1247			100'	
(370)	100		120	1246			100'	
(263)	100		400	1245			100'	
(1807)	100		576	1244			100'	
(2015)	100		512	1243			100'	
(1748)	100		432	1240			300'	
(22,190)				1236				
					CLOSE DRAINAGE			
								$\Sigma = 4407$
								$\Sigma = (6016)$

$(25,206)CY \times \$7.00 = \$197,442$

$4,407.CY \times \$9.25 = \$40,785$

\$238,207





May 5, 1989

EXHIBIT "H"

SCOPE OF DESIGN WORK

CONTRACT MIP-89-448

WILLOW SPRINGS INTERCHANGE  
TRI-STATE TOLLWAY, M.P. 22.0 TO M.P. 23.0  
STATION 1330+00 TO STATION 1383+00

I. PROJECT DESCRIPTION

This project involves the design and construction of a new parclo interchange on the Tri-State Tollway at the northern end of the Mile Long Bridge including mainline widening, ramp construction, crossroad bridge lengthening or reconstruction, toll plazas and crossroad construction. The project will include the addition of one mainline pavement lane plus auxiliary lanes in each direction on the Tri-State Tollway from the Mile Long Bridge to the I-55 exit and entrance ramps. The interchange ramps will be provided with toll plazas oriented to and from the north and connect to a new crossroad to be constructed under the end spans of the Mile Long Bridge, generally in accordance with preliminary conceptual layouts furnished by the Authority, all of which will be constructed under Contract MIP-89-448.

The improvement within the project limits shall be complete and shall include, but not be limited to, embankments, pavement, shoulders, bridge span replacement or lengthening, retaining walls, toll plazas complete with buildings and communications tower, roadway lighting, signing, pavement marking and delineation, traffic barriers and devices, drainage, noisewall, landscaping, maintenance of traffic, and all appurtenant and miscellaneous items.

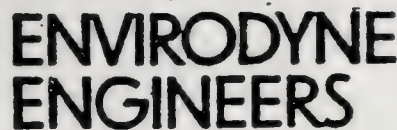
II. DESIGN SECTION ENGINEER'S SERVICES

The Design Section Engineer's (DSE) services under Contract MIP-89-448 shall consist of the study, design and preparation of contract plans and documents for the above described project together with preparation of any right of way and utility documents required in accordance with the requirements of the Authority's Design Section Engineer's Manual, dated January, 1986, as amended by the Authority, and herein specified. The design criteria, Standard Specifications, materials and construction requirements of the Illinois State Toll Highway Authority shall apply throughout.





$$D(\text{TOTAL}) = B(\text{INTERCH.}) + C(\text{CROSSROAD}) + A(\text{ML 4-LANE})$$

$$A(\text{ML}) = \text{MAINLINE 4-LANING}$$


Job No. 3214 Project: INTERCHANGE STUDY  
Subject: 1 MILE LONG BR./WILLOW SPRING  
RD / TRI-STATE TOLLWAY Sheet 1 of 1  
By: FRM Date: 12/9/88 Ck: \_\_\_\_\_ Date: \_\_\_\_\_

By: FRM Date: 12/9/88 Ck: \_\_\_\_\_ Date: \_\_\_\_\_

REC'D 5/26/89

PROJECT COST (1990) ALT. # 3A(REV)									
A		B				C		D	
DESCRIPTION	MAINLINE 4 <sup>TH</sup> LANE	INTERCHANGE		CROSSROAD		TOTAL			
		AVAILABILITY	RAMPS TO NORTH	RAMPS TO SOUTH	AT RAMPS		RAMPS TO SLOWLY R.D.		
PAVEMENT	581,000	185,000	428,000	209,000	325,000	173,000	1,901,000		
ROADWAY	229,000	895,000	855,000	964,000	627,000	597,000	4,167,000		
DRAINAGE	101,000	250,000	126,000	105,000	71,000	10,000	663,000		
LIGHTING	-	228,000	90,000	72,000	-	-	390,000		
BRIDGES	1,770,000	1,000,000	-	1,000,000	-	-	3,770,000		
RETAINING WALL	-	-	1,350,000	-	-	-	1,350,000		
TOLL COLLECTION & COMMUNICATIONS	-	-	3,550,000	-	-	-	3,550,000		
TRAFFIC SIGNAL	-	-	-	-	-	85,000	85,000		
APPURT. & MISC	200,000	500,000	380,000	350,000	245,000	55,000	1,730,000		
MAINT. OF TRAFFIC	100,000	200,000	50,000	50,000	50,000	10,000	460,000		
UTILITIES	-	50,000	100,000	-	50,000	-	200,000		
SUB-TOTAL CONSTRUCTION	2,981,000	3,308,000	6,929,000	2,750,000	1,368,000	930,000	18,266,000		
ENGINEERING 15%	450,000	470,000	1,040,000	400,000	190,000	140,000	2,690,000		
CONTINGENCY 15%	519,000	560,000	1,190,000	460,000	220,000	160,000	3,109,000		
SUBTOTAL PROJECT COST	3,950,000	4,338,000	9,159,000	3,610,000	1,778,000	1,230,000	24,065,000		
RIGHT OF WAY	-	-	1,250,000	-	1,050,000	650,000	2,950,000		
PROJECT COST - TOTAL	3,950,000	4,338,000	10,409,000	3,610,000	2,828,000	1,880,000	27,015,000		







From FRM est:

INTERCHANGE COSTS INCLUDE: AUXILIARY LANE: \$7,308,000  
RAMP \$5,120,000  
CROSSROAD \$2,298,000  
\$9,726,000

ROADWAY: \$1,211,000 FOR 4TH MAIN LINE: \$1,211,000  
ADD LANE 1 REPLACEMENT: 1.2 (5280) (19.48 + 99.01 + 19.27) = \$872,847  
ADD 4 LANE REHAB: ( ) (2.20 + 8.91 + 15 (65.00)) 5.56 = \$734,272  
\$2,818,119

STRUCTURES: ADDED \$1,000,000 TO MLB (TSS-500) FOR RAMP TAPER

S-185: REPLACE: NEED  $(87 \times 2) / \sin 75^\circ = 410' \times 28' \times 100\$/\text{sf} = \$1,148,000$

S-187: ASSUME REPLACE:  $((87+40) \times 2) / \sin 65^\circ = 280' \times 58' \times 75\$/\text{sf} = \$1,218,000$

S-189-190: WIDEN 1 LANE & SHOULDER - 23'

$2 [498' \times 23' \times 100\$/\text{sf} + 576' \times 66' \times 25'] = \$3,934,200$

S-193-194:  $2 [77.5' \times (12+6) \times 75\$/\text{sf} + 77.5' \times 59' \times 25'] = \$437,875$







**ENVIRODYNE  
ENGINEERS**

Job No. \_\_\_\_\_ Project: 10 yr. Program  
 Subject: Roadway Rehabilitation  
TSS-700 Sheet 1 of 4  
 By: RA Date: 8/15/89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_



### TSS-700

From M.P. 23.5 to M.P. 24.16

0.66 Miles = 3,484.8 ft.

B-22 (PDM) USED  $L = 644.2L = 2,110,000$

242.31 = 840,000

#### Pavement (Alt. #1)

Exist. surf. removal;  
 37' wide surf. pav. (one direction)

$$\left[ (3,484.8)(37 \times 2) \right] \div 9 = 28,652.8 \text{ S.Y.}$$

$$@ \$2.2 \text{ S.Y.} = \$63,036$$

New overlay (3");

$$28,652.8 \text{ S.Y.} @ \$8.91 \text{ S.Y.} = \$255,296$$

Shoulder Removal;

(11' & 12.5' wide)

$$\left[ (3,484.8)(22 + 25) \right] \div 9 = 18,198.4 \text{ S.Y.}$$

$$@ \$2.20 \text{ S.Y.} = \$40,036$$

New shoulder;

(11' wide)

$$3,484.8 \times 2 = 6,969.6 \text{ L.F.}$$

$$@ \$26.2 \text{ L.F.} = \$182,603$$

(12.5' wide)

$$6,969.6 \text{ L.F.}$$

$$@ \$29.7 \text{ L.F.} = \$206,997$$

Press. Relief Joints

5' Long @ 1500'

$$(4 \times 5 \times 37) \div 9 = 82.2 \text{ S.Y.}$$

$$@ \$65.0 \text{ S.Y.} = \$5,344$$

Total \$753,312







New overlay (3");

$$18,972.8 \text{ S.Y. @ } \$8.91 \text{ S.Y.} = \$169,047.65$$

Shoulder Removal:-

(12.5' wide)

$$[(3,484.8)(2 \times 12.5)] \div 9 = 9,680 \text{ S.Y.}$$

$$@ \$2.20 \text{ S.Y.} = \$21,296.0$$

New Shoulder:-

(12.5' wide)

$$(3,484.8 \times 2) = 6,969.6 \text{ L.F.}$$

$$@ \$29.7 \text{ L.F.} = \$206,997.12$$

Press. Relief Jt.(5):-

$$(2 \times 5 \times 25) \div 9 = 56 \text{ S.Y.}$$

$$@ \$65.0 \text{ S.Y.} = \$3,640.0$$

$$\text{Sub-Total } \$400,980.7$$

Structures:-

Bridge widening (12' wide additional lane);

Bridge # 195 & 196

$$(77.82 \times 12 \times 2) = 1,723.68 \text{ Ft}^2$$

$$@ \$100.0 \text{ Ft}^2 = \$172,368$$

Bridge # 203 & 204

ADD 100,000 REHAB

$$(167.67 \times 12 \times 2) = 4,024.08 \text{ Ft}^2$$

$$@ \$100.0 \text{ Ft}^2 = \$402,408$$

$$\text{Sub-total } \$574,776.0$$







ENVIRODYNE  
ENGINEERS

Job No. \_\_\_\_\_ Project: 10 Yr. Program  
Subject: Roadway Rehabilitation  
TSS-700 Sheet 4 of 4  
By: RA Date: 8/16/89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_


Retaining wall;

$$250 \text{ L.F.} \times 8.0' \text{ high} = 2,000 \text{ ft}^2 @ \$ 33.0/\text{ft}^2 = \$ 66,000.0$$

$$100 \text{ L.F.} \times 10.0' \text{ " " } = 1,000 \text{ ft}^2 @ \$ \text{ " " } = \$ 33,000.0$$

$$150 \text{ L.F.} \times 11.0' \text{ " " } = 1,650 \text{ ft}^2 @ \$ \text{ " " } = \$ 54,450.0$$

Sub-Total \$ 153,450.00

Summary:-

(Alt. #2)

Pavement \$ 1,860,616

Structures;  
(Bridge rehab,  
add. lane &  
ret. walls)

\$ 3,427,026

\$ 5,287,642







### Structures

Bridge # / LOC.	Deck Area ft <sup>2</sup>	Constr. Cost \$/ft <sup>2</sup>	Cost
#195 Joliet Rd	4,140	100.0	\$ 414,000
196 Joliet Rd	4,140	100.0	\$ 414,000
243 Flogg Creek	9,354	100.0	\$ 935,400
244 Flogg Creek	9,354	100.0	\$ 935,400
			<u>total \$ 2,698,800</u>

Summary -  
(Alt #1)

Pavement \$ 753,312

Structures \$ 2,698,800

Total \$ 3,452,112

0

### Auxiliary lane (s) (Alt #2)

Pavement: (Remove/replace exist. lane 1, add new 12' wide lane & 11" shoulder, rehabilitate remaining lane & shoulder, both directions).

(New lane (s)). -

3,484.8 L.F. @ \$ 406.88 L.F. (2 sides) = \$ 1,417,895

(Rehabilitation). -

Exist. surf. removal (2 direct.)

$$\left[ (3,484.8)(12+12.5)2 \right] \div 9 = 18,972.8 \text{ S.Y.}$$

@ \$ 2.2 S.Y. = \$ 41,740.16

Sub-Total \$ 1,459,635







ENVIRODYNE  
ENGINEERS

Job No. \_\_\_\_\_ Project: 10 Yr Program  
Subject: Roadway Rehabilitation  
TSN-100 Sheet 1 of 3  
By: RA Date: 8/11/89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_



TSN-100

FROM M.P. 44.5 TO M.P. 52.78

8.28 Miles = 43,718.4 ft.

$$4.5 \times 692.55 = 15,262,236$$

$$3.8 \times 292.31 = 4,861,708$$

$$\underline{\underline{20,120,000}}$$

Pavement

EXIST. surf. removal;

37' wide pav. surf. (each direction.)

$$[(43,718.4)(37 \times 2)] \div 9 = 359,462.454$$

$$@ \$2.20 \text{ S.Y.} = \$790,817$$

New overlay (3")

$$359,462.454 @ \$8.91 \text{ S.Y.} = \$3,202,810$$

Shoulder Removal;

(11' & 12.5' wide)

$$[(43,718.4)(22+25)] \div 9 = 228,307 \text{ S.Y.}$$

$$@ \$2.20 \text{ S.Y.} = \$502,276$$

New shoulder

(11' wide)

$$43,718.4 \times 2 = 87,436.8 \text{ L.F.}$$

$$@ \$26.20 \text{ L.F.} = \$2,290,844$$

(12.5' wide)

$$43,718.4 \times 2 = 87,436.8 \text{ L.F.}$$

$$@ \$29.77 = \$502,276$$

Sub Total \$ 7,289,023







# ENVIRODYNE ENGINEERS

Job No. \_\_\_\_\_ Project: 10 Yr Program  
 Subject: Roadway Rehabilitation  
TSN-100 Sheet 2 of 3  
 By: RA Date: 8/11/89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_



Pressure Relief Joints

5' long @ 1,500 ft

$$(43,718.4 \div 1,500) 2 = JB$$

$$(JB \times J \times 37) \div 9 = 1,192.254 @ \$65.054 = \$ 77,494$$

## Interchanges

Modifications to Interchanges

@ Golf Rd & Willow Rd,

\$ 4,000,000 ea.

= \$ 8,000,000

## Structures

Bridge # / Loc.	Deck Area ft <sup>2</sup>	Const. Cost \$/ft <sup>2</sup>	Cost	
# 319 Ballard Rd.	4,896	\$100.0	\$ 489,000	ADD 150,000
320 Ballard Rd.	4,896		489,000	
321 Golf Rd.	4,647		464,700	150,000
322 Golf Rd	4,112		464,700	
323 C & NW RR.	16,343		1,634,300	600,000
324 C & NW RR	16,343		1,634,300	
325 Central Rd	10,619		1,061,900	400,000
326 Central Rd	10,619		1,061,900	
327 Milwaukee Ave	6,476		647,600	200,000
328 Milwaukee Ave.	6,476		647,600	
329 Lake Ave.	8,733		873,300	320,000
330 Lake Ave.	8,733		873,300	
331 Willow Rd	14,177.5		1,417,752	520,000
333 Sanders Rd.	8,687		868,700	150,000
335 Dundee Rd.	13,002		1,300,240	
337 Sanders Rd	10,904		1,040,400	950,000
338 Sanders Rd.	10,904		1,040,400	

Sub Total \$ 16,010,332







Job No. 3328 Project: 10 Yr. Program  
Subject: Roadway Rehabilitation  
NWN-100 Sheet 3 of 3  
By: RA Date: 8/11/89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_



Roadway \$ 7,366,517

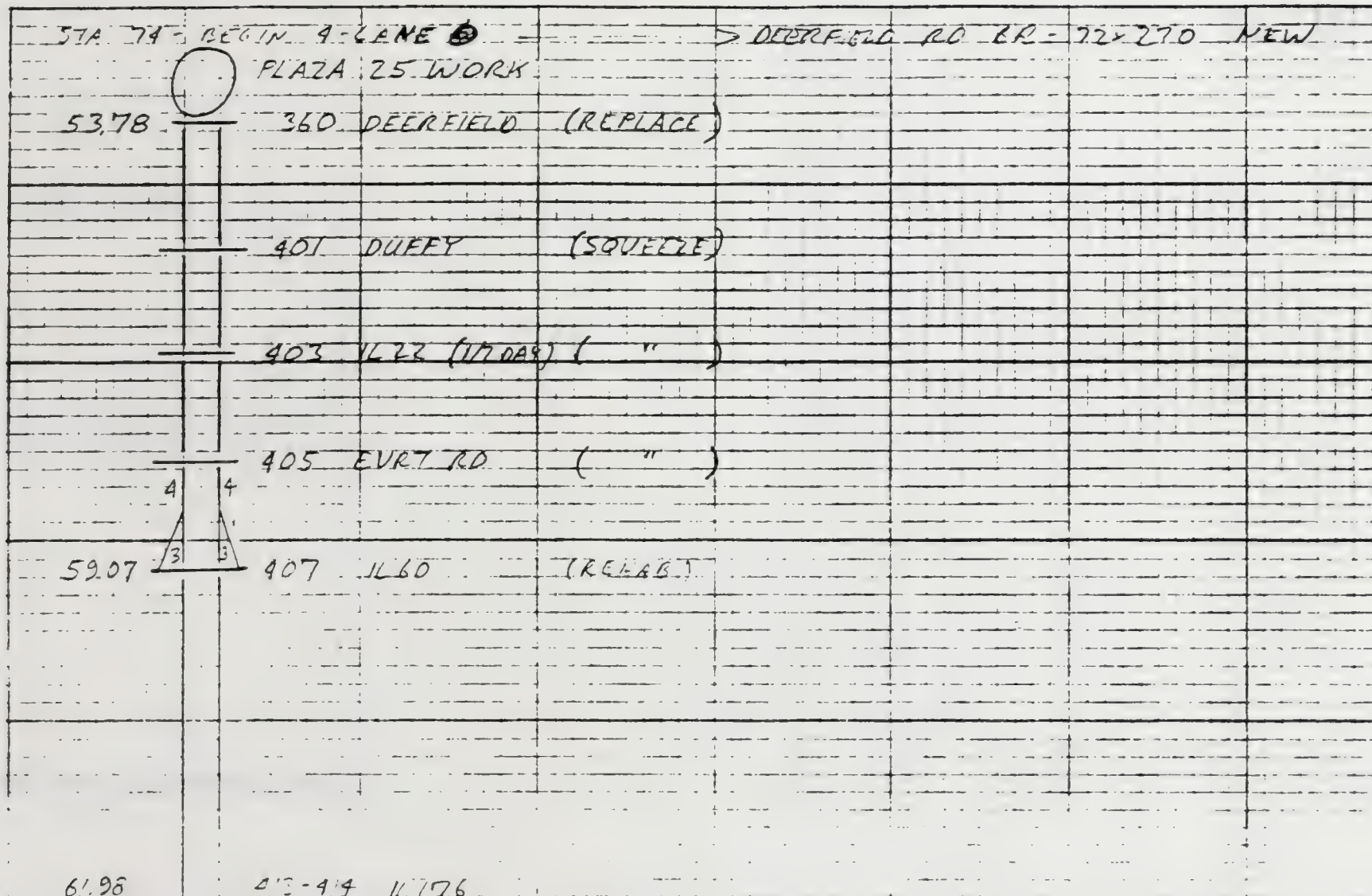
Interchanges \$ 8,000,000

Structures \$ 16,010,332

\$ 31,376,849







ROADWAY WIDENING:  $L = (59.07 - 53.78) 5280 = 27931 \text{ LF}$

AVG FILL H  $\approx 5'$ ; L/XF COST =  $\frac{40688}{10} + \frac{5}{10} (2)(16.91) = \frac{40688}{10} + 1.691 = 4068.96$

$\$13,512,738$   $\$15,793,305$  PLAZA  
 $+ \$3,000,000$  (SEL TSS-2)  
 $\$18,793,304$

ROADWAY REHAB:  $L = (61.98 - 59.07) 5280 = 15,385$

$\$8,723,093$  - TSN-210  
 $\$17,235,831$  - TSN-210

7/8 ADD: 6.583.000 NEW?  
 $\$ : 25,376,304$





Sheet 2 of \_\_\_\_\_  
 Ck: \_\_\_\_\_ Date: \_\_\_\_\_


50






# SPLIT OF DEERFIELD PLAZA, PROVIDE NEW S.B. PLAZA @ EVERETT RD.

## CONSTRUCTION

ROADWAY \$ 6,583,000 ✓

MAINLINE PLAZA 3,550,000 ✓

MODIFICATIONS TO  
HALF DAY RD PLAZA 880,000 ✓

MODIFICATIONS TO  
EVERETT RD BRIDGE 487,000 ✓

\$ 11,500,000

## ENGINEERING

\$ 1,495,000

## RIGHT OF WAY

13 ACRES @ \$30,000/ac \$ 390,000

ACQUISITION 39,000

\$ 429,000

Does not include costs  
for floodplain compensation  
or wetlands.

SUBTOTAL \$ 13,424,000

CONTINGENCY (10%) 1,342,000

Plaza would be  
located in the floodway  
of the existing river.

TOTAL Proj COST \$ 14,766,000







### Interchanges

#### Modifications to Interchanges

@ IL Rte. 176, IL Rte. 137, IL Rte. 120,

IL Rte. 121, Grand Ave, Rosecrans Rd

& Skokie Highway

= \$ 28,000,000

### Structures

Bridge # / Loc.	Deck Area ft <sup>2</sup>	Constr. Cost \$/ft <sup>2</sup>	Cost
# 415 C.M. St. P & P RR	6,141	100.0	\$ 614,100
416 C.M. St. P & P RR	6,141	100.0	614,100
417 Atkinson Rd.	5,844	75.0	438,300
419 Buckloy Rd.	13,122.5	75.0	984,187
421 O'Plaine Rd.	10,700	75.0	787,500
423 IL Rte. 120	8,105.5	100.0	810,550
424 IL Rte. 120	11,459.5	100.0	1,145,950
425 Des Plaines River	6,956	100.0	695,600
426 Des Plaines River	6,956	100.0	695,600
427 Milwaukee Ave.	14,471	100.0	1,447,100
429 Washington St.	4,669	100.0	466,900
430 Washington St.	4,669	100.0	466,900
431 Grand Ave.	26,738.5	100.0	2,673,850
433 Stearns School	5,324	75.0	399,294
435 Mill Creek	4,433	100.0	443,300
436 Mill Creek	4,433	100.0	443,300
437 Wadsworth Rd.	7,432	75.0	557,382
439 Kelly Rd.	5,364	100.0	402,300
441 Rosecrans Rd.	13,079	100.0	1,307,900
443 Old Skokie Hwy Skokie Rd, US 41	8,298	100.0	829,800
445 " " " "	8,052	100.0	805,520
447 Relocated US 41	21,219	100.0	2,121,900







## TSN-300

FROM M.P. 61.98 TO M.P. 77.25  
 15.27 Miles = 80,625.6 ft

### Pavement

EXIST. SURF. REMOVAL  
 37' wide pav. (each direction)

$$\left[ (80,625.6)(37 \times 2) \right] \div 9 = 662,921.6 \text{ S.Y.}$$

$$@ \$ 2.20 \text{ S.Y.} = \$ 1,458,427$$

### New overlay (3")

$$662,921.6 \text{ S.Y.} @ \$ 8.91 \text{ S.Y.} = \$ 5,906,431$$

### Shoulder removal:

(11' & 12.5' wide)

$$\left[ (80,625.6)(22 + 25) \right] \div 9 = 421,045 \text{ S.Y.}$$

$$@ \$ 2.20 \text{ S.Y.} = \$ 926,299$$

### New shoulder:

(11' wide)

$$80,625 \times 2 = 161,250 \text{ L.F.}$$

$$@ \$ 26.2 \text{ L.F.} = \$ 4,224,781$$

(12.5' wide)

$$80,625 \times 2 = 161,250 \text{ L.F.}$$

$$@ \$ 29.77 = \$ 4,800,448$$

### Pressure Relief Joints:

5' long @ 1,000'

$$(80,625.6 \div 1,000) \times 2 = 108$$

$$(108 \times 5 \times 37) \div 9 = 2,220 \text{ S.Y.}$$

$$@ \$ 65.0 \text{ S.Y.} = \$ 144,300$$

Sub-Total \$ 17,460,886

1 ADDED 3% MOT







Job No. \_\_\_\_\_ Project: 10 Yr. Program  
Subject: Roadway Rehabilitation  
TSN-300 Sheet \_\_\_\_\_ of \_\_\_\_\_  
By: RA Date: 8/14/89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_



Roadway \$ 17,460,886

Interchanges \$ 28,000,000

structures \$ 19,151,333

\$ 64,612,219

PDM - 8/25 - raised roadway to  $\$242.31 \times 80,626 = \$19,540,000$ .

IL 120:  $\$ (300,000) + 2(1,500,000) = \$8,700,000$

IL 21:  $2 \text{ " } + \text{ " } = \$3,600,000$

Plaza 21A:  $2 \text{ ramps} \times 2 \text{ lanes} \times 39,500 = \$1,570,000$

Plaza 21:  $8(391,500) + 2(1,000,000) = \$5,130,000$







### TSN-ESP

FROM M.P. 48.4 TO M.P. 53.0  
 4.6 Miles = 24,288 ft.

#### Pavement:

Exist. surf. removal  
 (both directions 12.5' wide lanes)

$$\left[ (24,288)(12.5 \times 4) \right] \div 9 = 134,933 \text{ S.Y.}$$

$$@ \$ 2.20 \text{ S.Y.} = \$ 296,853$$

New overlay (3")

$$134,933 \text{ S.Y.} @ \$ 8.91 \text{ S.Y.} = \$ 1,202,273$$

#### Shoulder Removal:

(11' & 5' wide)

$$\left[ (24,288 \times 2)(11+5) \right] \div 9 = 86,377.3 \text{ S.Y.}$$

$$@ \$ 2.20 \text{ S.Y.} = \$ 189,986$$

#### New Shoulder:

(11' wide)

$$24,288 \times 2 = 48,576 \text{ L.F.}$$

$$@ \$ 26.20 \text{ L.F.} = \$ 1,272,691$$

(5' wide)

$$24,288 \times 2 = 48,576 \text{ L.F.}$$

$$@ \$ 11.8 \text{ L.F.} = \$ 573,197$$

#### Pressure Relief Joints:

5' long @ 1,500 ft

$$(24,288 \div 1,500) 2 = 32$$

ADD 32 JOINTS

$$(32 \times 5 \times 25) \div 9 = 450 \text{ S.Y.} @ \$ 65.0 \text{ S.Y.} = \$ 29,250$$







## Interchanges

Modifications to Interchanges  
 @ U.S. Rte 41 & Waukegan Rd.  
 @ \$4,000,000 ea.

= \$8,000,000

## Structures

Bridge # / Loc.	Deck Area ft <sup>2</sup>	Constr. Cost \$/ft <sup>2</sup>	Cost
#361 Edens Expwy. US 41	9,898	\$100.0	989,800
357 Skokie Hwy.	6,439		643,900
359 Skokie Hwy	6,610		661,000
355 C & NW RR	14,732		1,473,200
356 C & NW RR	14,732		1,473,200
353 E. Fork of Chi. Riv.	2,106		210,600
354 E. Fork of Chi. Riv	2,106		210,600
351 Waukegan Rd Bldg	21,123		2,112,300
349 CM St. P. & P RR	13,015		1,301,500
350 CM St. P. & P RR	13,015		1,301,500
347 W. Fork of Chi. Riv.	1,634		163,400
348 W. Fork of Chi. Riv.	1,634		163,400
345 Pfingsten Rd	6,300		630,000

Sub-Total \$11,304,420







# ENVIRODYNE ENGINEERS

Job No. \_\_\_\_\_ Project: \_\_\_\_\_  
Subject: \_\_\_\_\_  
Sheet \_\_\_\_\_ of \_\_\_\_\_  
By: \_\_\_\_\_ Date: \_\_\_\_\_ Ck: \_\_\_\_\_ Date: \_\_\_\_\_



	IL31 D= \ 6,000 L.F.	IL27 D= \ 12,000 L.F.	IL59 (INCLUDES IL59 RAMPS.) D= \ 13,200 L.F.	BARL D= \ 17,700 L.F.	ROSE
4 LANE REHAB	#1 LF x D = 695,340 INTERCH. = -0- STRUCT = 0 <u>695,340</u>	2,201,910 0 0 <u>2,201,910</u>	1,529,748 (9,000,000) 0 <u>10,529,748</u>	N.A.	
WIDEN 4 TO 6	695,340 1,346,380 STRUCT = 1,820,000 <u>3,861,920</u>	2,201,910 3,264,170 0 <u>6,466,080</u>	10,529,748 2,962,476 0 <u>13,492,224</u>	N.A.	
6 LANE REHAB	N.A.	N.A.	N.A.	3,035,904 709,233 <u>3,745,137</u>	
WIDEN 6-8	N.A.	N.A.	13,492,224 5,370,816 STR: 6,110,000 B/W: 165,000 <u>25,138,040</u>	3,745,137 7,201,776 830,000 221,250 <u>11,998,163</u>	

MULTIPLIERS: 10% DRAINAGE & GR  
12% CONTINGENCIES  
13% ENGINEERING

⑩ 938,709    ⑪ 2,972,579    ⑫ 14,215,160  
⑬ 5,213,592    ⑭ 8,729,208    ⑮ 18,214,502    ⑯ 5,055,935  
⑰ 33,936,354    ⑱ 16,197,520

4446	1. 23.2	1.
4466	2. 27.2	2.
4466	3. 32.9	3.
6466	4. 37.2	5.
4468	5. 39.3	4.
4468	6. 38.9	6.
4488	7. 54.0	10.
4488	8. 59.8	11.
5468	9. 64.1	7.
4468	10. 44.1	8.
6468	11. 45.1	

REVISED







# ENVIRODYNE ENGINEERS

Job No. \_\_\_\_\_ Project: \_\_\_\_\_  
Subject: \_\_\_\_\_  
Sheet \_\_\_\_\_ of \_\_\_\_\_  
By: \_\_\_\_\_ Date: \_\_\_\_\_ Ck: \_\_\_\_\_ Date: \_\_\_\_\_


## ADDED INTERCHANGE COSTS:

ROSELLE RD  $2 (10 \text{ laps}) \times 1.5M = \$3,000,000$

$2 \times 7 \text{ lanes} \times 391.5K = \$1,566,000$

BARR RD : SAME







### REVISED / ADDED ASSUMPTIONS:

- NO WIDENING OF FOX RIVER BRIDGE OR 635-636 (1L31) FOR 6-LANES;
- PLAZA 11 REMOVAL, PLAZA 12 CONSTRUCTION & PLAZA 13 RECONFIG. INCLUDED;
- SINCE REVISED L.F. COSTS INCLUDE DRAINAGE & H.O.T., DO NOT USE 10% INCREASE FACTOR IN EARLIER ESTIMATE.

LENGTH FROM 1L25 TO 1L31:  $(29.16 - 22.95) 5280 - 2650 = \text{SAY } \underline{6,400 \text{ L.F.}}$

	1L31	1L25	1L59	BARRED	ROS.
	6400'	19,000'	13,200'	17,700'	
ROADWAY					
4 LANE	\$1,027,648 <sup>(REH)</sup>	\$3,050,830 <sup>(REH)</sup>	\$2,119,524 <sup>(REH)</sup>	-	
6 LANE	\$2,777,728 <sup>(WIDEN)</sup>	\$8,746,380 <sup>(WIDEN)</sup>	\$5,729,064 <sup>(WIDEN)</sup>	\$4,288,887 <sup>(REH)</sup>	
8 LANE	-	-	\$8,978,360 <sup>(WIDEN)</sup>	\$11,368,710 <sup>(WIDEN)</sup>	
STRUCTURE COSTS w/ 8 LANES	-	-	\$6,100,000	\$830,000	

COSTS COMMON TO ALL ALTERNATIVES: 1L59 - \$9,000,000 (RAMPS, PLAZA, R/W.

1L25 - \$210,000 (PLAZA

1L31 - \$100,000 (PLAZA REMOVE

BARRED - \$660,000 (RAMPS

\$9,970,000

AND 25% CONT. & ENGR.

ALT #		\$
1	4-4-4-6	25,571,111
2	4-4-6-6	30,083,036
3	4-4-4-8	35,458,390
4	4-6-6-6	36,577,974
5	4-4-6-8	39,970,315
6	6-6-6-6	38,765,074
7	4-6-6-8	46,464,753
8	6-6-6-8	48,652,352
9	4-4-8-8	51,031,935
10	4-6-8-8	57,526,373
11	6-6-8-8	59,713,973

OVER 10.91 MI. PROJECT LENGTH

- FACTORS WHICH COULD REDUCE COST:
- 1) LESS BASE REPAIR (\$1-\$2 MILL.)
  - 2) DO NOT REPLACE OLD LANE ① (\$1.3-\$3 MILL.)
  - 3) LOWER COST FOR 1L59 INTERCHANGE (\$2-\$3







IN LIGHT OF YEAR 2000 PROJECTIONS - REDUCE WIDENING TO

BARR. - ILS9: \$2,777,728  
\$6,246,380  
\$5,729,064  
\$4,288,887

\$21,042,059  
660,000 - BARR. INT. RAMPS

\$21,702,059 - ENTER INTO SPREADSHEET  
x 1.25

\$27,130,000 - NOTE THAT INTERCHANGES, PLAZAS, ETC.  
BEING BUILT UNDER OTHER CONTRACTS

10/12 - ROSELLE - BARR: 11,368,710  
830,000

12,198,710 x 1.25 = 15,248,388

BARR - ILS9: 5,729,064 x 1.25 = 7,161,330







**ENVIRODYNE  
ENGINEERS**

Job No. 3328 Project: 10 Yr. Program  
Subject: Roadway Rehabilitation  
NWW-100 Sheet 1 of 1  
By: RA Date: 8/10/09 Ck:          Date:         



NWW-100

FROM M.P. 24.5 TO M.P. 32.5

8.0 miles = 42,240 ft

Pavement:

Exist. surf. removal;  
(both directions, 12.5' wide lanes)

$$\left[ (42,240)(12.5 \times 4) \right] \div 9 = 234,667 \text{ S.Y.}$$

$$@ \$ 2.20 \text{ S.Y.} = \$ 516,267$$

New overlay (3")

$$234,667 \text{ S.Y.} @ \$ 8.91 \text{ S.Y.} = \$ 2,090,880$$

Shoulder removal;

(11' wide) -

$$\left[ (42,240 \times 11) 2 \right] \div 9 = 103,253 \text{ S.Y.}$$

$$@ \$ 2.20 \text{ S.Y.} = \$ 227,157$$

(5' wide)

$$\left[ (42,240 \times 5) 2 \right] \div 9 = 46,933 \text{ S.Y.}$$

$$@ \$ 2.20 = \$ 103,253$$

New shoulder;

(11' wide)

$$42,240 \times 2 = 84,480 \text{ L.F.}$$

$$@ \$ 26.20 \text{ L.F.} = \$ 2,213,376$$

(5' wide)

$$42,240 \times 2 = 84,480 \text{ L.F.}$$

$$@ \$ 11.80 \text{ L.F.} = \$ 996,864$$

Sub-Total \$ 6,147,797







ENVIRODYNE  
ENGINEERS

Job No. 3328 Project: 10 Yr. Program  
Subject: Roadway Rehabilitation  
NWW-100 Sheet 3 of       
By: RA Date: 8/10/89 Ck:      Date:     


Roadway \$ 6,198,352

Interchanges \$ 4,000,000

Structures \$ 6,437,700

\$ 16,636,052







NWW-200

From M.P. 32.5 to M.P. 61.4  
 28.9 Miles, 152,592 ft

Pavement;

Exist. surf. removal:  
 (both directions, 12.5' wide lanes)

$$\left[ (152,592)(12.5' \times 4) \right] \div 9 = 847,733 \text{ s.y.}$$

$$\text{ @ } \$2.20 \text{ s.y.} = \$1,865,013$$

New overlay (3"):

$$847,733 \text{ s.y. @ } \$8.91 \text{ s.y.} = \$7,553,304$$

Shoulder removal;  
 (11' wide)

$$\left[ (152,592 \times 11) 2 \right] \div 9 = 373,002 \text{ s.y.}$$

$$\text{ @ } \$2.20 \text{ s.y.} = \$820,606$$

(5' wide)

$$\left[ (152,592 \times 5) 2 \right] \div 9 = 169,546 \text{ s.y.}$$

$$\text{ @ } \$2.20 \text{ s.y.} = \$373,002$$

New shoulder;

(11' wide) @ \$26.20 L.F.

$$(152,592 \times 2) \times \$26.20 = \$7,995,820$$

(5' wide) @ \$11.80 L.F.

$$(152,592 \times 2) \times \$11.80 = \$3,601,171$$

Sub-Total \$22,208,512







(cont'd)

# 647	Springwater Rd	5,808.44	\$ 75.00	\$ 435,600
645	Mosquito Creek	3,071	100.00	307,100
646	Mosquito Creek	3,071	100.00	307,100
643	Johnson Rd	5,196	75.00	389,700
641	Gaucho Rd. Ramp	7,902	100.00	790,200
639	Gaucho Rd.	7,000	100.00	700,000
749	Cokoon Rd	5,172	75.00	387,900
747	Reart St	5,112	75.00	383,400
745	Stone Quarry Rd	5,112	75.00	383,400
743	Town Hall Rd.	5,186	75.00	388,950
741	Irene Rd	5,184	75.00	388,800
739	US Rte 20	9,420	100.00	942,000
739-A	US Rte 20	9,470	100.00	947,000
733	Mill Rd	6,230	75.00	467,250
Sub-Total				\$ 7,218,400

Roadway \$ 22,392,591.00

Interchanges \$ 8,000,000.00

Structures (Bridges) \$ 11,120,200

\$ 42,012,791

raised to  $160.57 \times 152,592 = 24,500,000$

added ramps @ 16.97:  $2(15M) = 3,000,000$

" single automatic pump, plazas =  $2(371.5) = 743$  sq ft

BECAUSE REMOTE SITE







Pressure Relief Joints;  
5' long @ 1,500'

$$(152,592' \times 2) \div 1,500' = 203$$

$$(5 \times 25 \times 203) \div 7 = 2,826 \text{ S.Y.}$$

$$@ \$65.00 \text{ S.Y.} = \$183,675$$

### Interchanges

Modifications to Interchanges @

US Rte 20 & Geneva Rd.

$$@ \$4,000,000 \text{ ea.} = 8,000,000$$

Belvidere Docks (Ramps)

$$@ \text{L.S. } \$100,000 = 100,000$$

$$\text{Sub-Total } \$8,683,675$$

### Structures

Bridge # / Loc.	Deck Area ft <sup>2</sup>	Const. Cost \$/ft <sup>2</sup>	Cost
# 621, II Rte 47	12,256	\$100.00	\$1,225,600 (in NWW-100)
614 US Rte 20	5,736	100.00	\$573,600
613 US Rte 20	5,736	100.00	\$573,600
601 Coon Creek	5,229	100.00	\$522,900
602 Coon Creek	5,229	100.00	\$522,900
655 Anthony Rd.	7,144	75.00	\$535,800
653 County Line Rd.	5,444	75.00	\$408,300
651 Gordon Prairie Rd.	5,072	75.00	\$380,400
649 Skatfück Rd.	5,724	75.00	\$429,300
			\$3,901,800
			Sub Total \$5,127.46







NWW-300

FROM M.P. 61.4 TO M.P. 76.5  
 15.1 miles = 79,728 ft.

Pavement ;

EXIST. SURF. REMOVAL ;  
 (both directions, 12.5' wide lanes)

$$\left[ (79,728)(12.5 \times 4) \right] \div 9 = 442,933 \text{ S.Y.}$$

$$@ \$ 2.20 \text{ S.Y.} = \$ 974,452$$

New overlay (3") ;

$$442,933 \text{ S.Y.} @ \$ 8.91 \text{ S.Y.} = \$ 3,946,133$$

Shoulder Removal ;

(11' wide)

$$\left[ (79,728 \times 11) 2 \right] \div 9 = 194,890 \text{ S.Y.}$$

$$@ \$ 2.20 \text{ S.Y.} = \$ 428,758$$

(5' wide)

$$\left[ (79,728 \times 5) 2 \right] \div 9 = 88,587 \text{ S.Y.}$$

$$@ \$ 2.20 \text{ S.Y.} = \$ 194,890$$

New shoulder ;

(11' wide)

$$(79,728 \times 2) = 159,456 \text{ LF}$$

$$@ \$ 26.20 \text{ LF} = \$ 4,177,747$$

(5' wide)

$$(79,728 \times 2) = 159,456 \text{ LF}$$

$$@ \$ 11.80 \text{ LF} = \$ 1,881,580$$

Sub-Total \$ 11,603,960

ADD 3% TO ROADWAY TOTAL







# ENVIRODYNE ENGINEERS

Job No. 3328 Project: 10 Yr. Program  
Subject: Roadway Rehabilitation  
NW W-300 Sheet 2 of       
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Pressure Relief Joints;  
5' long @ 1,500 ft.

$$2 (79,728 \div 1,500) = 106$$

$$(5 \times 25 \times 106) \text{ sq. ft.} = 1,472 \text{ sq. ft.}$$

$$@ \$65.00 \text{ sq. ft.} = \$95,694$$

## Interchanges

Modifications to Interchanges @  
US 20 Rockford Bypass, and  
US 20 Rockford Business.

$$@ \$4,000,000 \text{ ea.} = \$8,000,000$$

$$\text{Sub-Total } \$8,095,694$$

## Structures

Bridge #/Loc.	Deck Area ft <sup>2</sup>	Constr. Cost \$/ft <sup>2</sup>	Cost
#729 Newburg Rd.	5,232	75.00	\$ 392,400
719 US Rte. 20 Bus.	5,891	100.00	589,100
720 US Rte. 20 Bus.	5,891	100.00	589,100
723 Guilford Rd.	5,136	75.00	385,200
725 Hunter Rd.	5,922	75.00	444,150
727 E. Riverside Rd.	5,922	100.00	592,200
701 Horton Rd.	6,291	75.00	471,825
703 Rte. 173	4,528	100.00	452,800
704 Rte. 173	4,528	100.00	452,800
705 Swanson Rd.	5,580	75.00	418,500
Sub-Total			\$ 4,788,075







(cont'd.)

#707 Belvidere Rd.	10,486	75.00	786,450
709 C & N RR	5,606	100.00	560,600
710 C & N RR	5,606	100.00	560,600
711 Burr Oak Rd.	4,632	100.00	463,200
712 Burr Oak Rd.	4,632	100.00	463,200
713 Elevator Rd.	6,376	75.00	478,200
715 McCurry Rd.	5,272	75.00	395,400
717 Rockton Rd.	6,053	75.00	453,975

\$ 4,157,125

Roadway \$ 11,699,654

Interchanges \$ 8,000,000

Structures \$ 8,945,200

\$ 28,644,854







**ENVIRODYNE  
ENGINEERS**

Job No. \_\_\_\_\_ Project: 10 Year Program  
 Subject: EWV-100  
 By: JB Date: 08/21/19 Sheet \_\_\_\_\_ of \_\_\_\_\_  
 Date: \_\_\_\_\_


*use this!*

Section from M.P. 58.00 to M.P. 69.86

$$L = 11.86 \text{ miles} = 62,620.8'$$

Structure #1257-1258 ;  $L = 116.34'$

#1255-1256 ;  $L = 164.87'$

C. & N.W. RR,

#1243-1244 ;  $L = 93.02'$

#1239-1240 ;  $L = 185.00'$

I.C. RR,

#1237-1238 ;  $L = 199.00'$

$$\Sigma = 758.23'$$

\* Approach slab  $(20' \times 5) / 2 = 300 \checkmark$

$$1058.23$$

$$L' = 62,620.8 - \frac{758.23}{1058.23} = 61,562.57' \text{ (Roadway length)}$$

① Rehabilitation Cost:

$$61,562.57 \times \frac{\$8,498,066}{137.37} = \$8,456,850$$

② Replacement Cost:

$$61,562.57 \times \frac{\$16,388,632}{264.92} = \$16,309,156$$

*Bridge*  
 \* Approach Pkts included in Roadway length.





ENVIRODYNE  
ENGINEERS

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Subject: EWIV - 100  
By: PA Date: 08/22/89 Ck: \_\_\_\_\_ Sheet \_\_\_\_\_ of \_\_\_\_\_  
Date: \_\_\_\_\_


Section from H.P. 53.00 to H.P. 69.86 (cont.)

Structure Rehabilitation

Sr. #1257 - 1258	\$ 200,000.
#1255 - 1256	200,000.
#1253	100,000
#1251	100,000
#1249	100,000
#1247	100,000
#1245	100,000
#1243 - 1244	200,000
#1241	100,000
#1239 - 1240	200,000
#1237 - 1238	200,000
#1235	100,000

$\Sigma = 1,700,000$

Interchange @ H.P. 69.86 Rehabilitation \$ 3,000,000

<u>Section I</u>	Rehabilitation total:	\$ 13,198,061
	Replacement total:	\$ 16,388,632







**ENVIRODYNE  
ENGINEERS**

Job No. \_\_\_\_\_ Project: \_\_\_\_\_  
 Subject: ENV 11-100  
 By: SB Date: 08/22/89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_  
 Sheet \_\_\_\_\_ of \_\_\_\_\_



II Section from H.P. 69.86 to H.P. 91.66  
 $L = 21.8 \text{ miles} = 115,101.00$

Structure # 1233-1234 ;  $L = 196$   
 # 1201-1202 ;  $L = 89$   
 # 1151-1152 ;  $L = 153$   
 # 1205 ;  $80$

$\Sigma = 518$

Approval slot  $(30' \times 4)' = 240 \checkmark$

$$L' = 115,101 - \overset{518}{758} = \overset{114,586}{114,346}$$

① Rehabilitation Cost 15,740,679  
 $114,346 \overset{586}{\times} 137.37 / LF = \$ 15,707,710$

② Replacement Cost 30,356,123  
 $114,346 \overset{586}{\times} 264.92 / LF = \$ 30,292,542$







ENVIRODYNE  
ENGINEERS

Job No. \_\_\_\_\_ Project: 10 Year Program  
Subject: ENW - 100  
By: SB Date: 08/22/89 Sheet 1 of 1  
Date: \_\_\_\_\_



Section from M.P. 69.86 to M.P. 91.66 (cont.)

Structure Rehabilitation

Str. # 1233-1234	\$ 200,000
# 1231	100,000
1229	100,000
1227	100,000
1225	100,000
1223	100,000
1221	100,000
1219	100,000
1217	100,000
1215	100,000
1213	100,000
1211	100,000
1209	100,000
1207	100,000
1206	100,000
1203	100,000
* 1201-1202	200,000
1151-1152	200,000

$\Sigma = \$2,100,000$

Interchange @ I.C. 25 / M.P. 91.66 Rehabilitation : \$ 3,000,000

Section II Rehabilitation total : \$ 20,840,679

Replacement total : \$ 30,292,542  
30,356,123











ENVIRODYNE  
ENGINEERS

Job No. \_\_\_\_\_ Project: 10 Year Program  
Subject: ENW-100  
By: BE Date: 08/22/89 Sheet \_\_\_\_\_ of \_\_\_\_\_  
Date: \_\_\_\_\_



III. Section from M.P. 91.66 to M.P. 94.12

$$L = 2.46 \text{ miles} = 12,988.8'$$

Structure # 1147-1148;  $L = 306$  CH & ST P. RR

$$\text{Approach slab } (80' \times 1)' \div 2 = \frac{60}{2} = 30'$$

$$L' = 12,988.8 - 306 = 12,682.8'$$

① Rehabilitation cost:

$$\frac{12,682.8' \times \$137.37}{L.F.} = \$1,742,236$$

② Replacement cost

$$\frac{12,682.8' \times \$264.92}{L.F.} = \$3,359,927$$







ENVIRODYNE  
ENGINEERS

Job No. \_\_\_\_\_ Project: 10 Year Program  
Subject: ENW-100  
By: JB Date: 08/22/89 Sheet \_\_\_\_\_ of \_\_\_\_\_  
Date: \_\_\_\_\_



Section from M.P. 91.66 to M.P. 94.12 (cont.)

Structure Rehabilitation

Str. # 1149

\$ 100,000

# 1147-1148

\$ 200,000

$\Sigma = \$ 300,000$

Interchange @ U.S. 57 M.P. 94.12 Rehabilitation - \$3,000,000

Section III

Rehabilitation total: \$

5,042,236

~~5,033,994~~

Replacement total: \$

~~3,344,032~~

3,359,927





ENVIRODYNE  
ENGINEERS

Job No. \_\_\_\_\_ Project: 10 Year Program  
Subject: ENW-177  
By: GB Date: 08/22/89 Ck: \_\_\_\_\_ Sheet \_\_\_\_\_ of \_\_\_\_\_  
Date: \_\_\_\_\_



IV

Section from M.P. 94.12 to M.P. 106.95

$$L = 12.83 \text{ miles} = 67,742.4'$$

① Rehabilitation Cost

$$67,742.4 \times \frac{\$137.37}{\text{L.F.}} = \$9,305,773$$

② Replacement Cost

$$67,742.4 \times \frac{\$264.94}{\text{L.F.}} = \$17,946,317$$

Structure Rehabilitation

Str. # 1145	\$100,000
1143	100,000
1141	100,000
1139	100,000
1137	100,000
1135	100,000
1133	100,000
1131	100,000

$\Sigma = \$800,000$

Interchange @ M.P. 106.95 Rehabilitation : \$3,000,000







ENVIRODYNE  
ENGINEERS

Job No. \_\_\_\_\_ Project: 10 Year Program  
Subject: EWV - 100  
By: JS Date: 02/22/89 Sheet \_\_\_\_\_ of \_\_\_\_\_  
Date: \_\_\_\_\_



Section IV

Rehabilitation total: \$ 13,105,773

Replacement total: \$ 17,946,317







**ENVIRODYNE  
ENGINEERS**

Job No. \_\_\_\_\_ Project: 10 Year Program  
 Subject: EWV-100  
 By: SE Date: 08/22/89 Sheet \_\_\_\_\_ of \_\_\_\_\_  
 Date: \_\_\_\_\_



V

Section from M.P. 106.95 to M.P. 109.54

$$L = 2.59 \text{ miles} = 13,675.2'$$

$$\text{Str. \# 1129-1130 ; } L = 121.62'$$

$$1125-1126 ; L = 160'$$

$$1123-1124 ; L = 154.06' \text{ c.f. N.W. R.R.}$$

$$435.68$$

$$\text{Approach slab } (30 \times 3)/2 = 120'$$

$$\cancel{615.68}$$

$$L' = 13,675.2 - \cancel{615.68} = 13,059.52'$$

① Rehabilitation Cost:

$$\begin{array}{r} 13,239.52 \\ + 3,059.52 \end{array} \times \$137.37/\text{LT.} = \$ \begin{array}{r} 1,818,713 \\ \cancel{1,793,986} \end{array}$$

② Replacement Cost:

$$\begin{array}{r} 13,239.52 \\ + 3,059.52 \end{array} \times \$264.92/\text{LT.} = \$ \begin{array}{r} 3,507,914 \\ \cancel{3,459,728} \end{array}$$





ENVIRODYNE  
ENGINEERS

Job No. \_\_\_\_\_ Project: 10 Year Program  
Subject: EWV-100  
By: SB Date: 8/22/89 Ck: \_\_\_\_\_ Sheet \_\_\_\_\_ of \_\_\_\_\_  
Date: \_\_\_\_\_



Section from H.P. 106.94 to H.P. 109.54 (cont.)

Structure Rehabilitation

Str. # 1129-1130	\$ 200,000
1127	100,000
1125-1126	200,000
1123-1124	200,000
1121	100,000
1119	100,000

$\Sigma = \$ 900,000.$

Interchange @ H.P. 108.65 Rehabilitation : \$ 3,000,000

<u>Section V</u>		5,718,713
Rehabilitation total :	\$	<del>5,693,986</del>
Replacement total :	\$	<del>3,459,728</del>
		<u>3,507,414</u>







**ENVIRODYNE  
ENGINEERS**

Job No:

Project:

10 Year Program

Subject:

EW-100

By:

SEA

Date:

08/22/89

Of:

Sheet

of

Date:


VI Section from M.P. 109.54 to M.P. 124.82

$L = 15.28 \text{ miles} = 80,678.4'$

Str # 1103-1104;  $L = 86.5'$

Approved slab (30x1) = 60

~~146.5~~

$$L' = 80,678.4 - 86.5 = 80,591.90'$$

$$L' = 80,591.90' - 146.5 = 80,445.4'$$

① Rehabilitation Cost:

$$\frac{80,591.90}{80,445.4} \times 137.37/L.F. =$$

11,070,909

~~\$ 11,062,667~~

② Replacement Cost: 21,350,406

$$\frac{80,591.90}{80,445.4} \times 264.92/L.F. =$$

~~\$ 21,334,571~~







Section from H.P. 109.54 to H.P. 124.82 (cont)

### Structure Rehabilitation

Str. #	1117	\$ 100,000
	1115	100,000
	1113	100,000
	1111	100,000
	1109	100,000
	1107	100,000
	1105	100,000
	1103-1104	200,000
	1101	100,000

Σ = \$ 1,000,000

Interchange Rehabilitation @ H.P. 109.54 } \$ 3,000,000  
 @ H.P. 124.82 }

### Section VI

	15,070,909
Rehabilitation total:	\$ <del>15,062,667</del>
Replacement total:	\$ <del>21,334,511</del>
	21,350,406





ENVIRODYNE  
ENGINEERS

Job No. \_\_\_\_\_ Project: 10 year Program  
Subject: EWV-100  
By: FB Date: 08/22/89 Ck: \_\_\_\_\_ Sheet \_\_\_\_\_ of \_\_\_\_\_  
Date: \_\_\_\_\_



VII Section from H.P. 124.82 to H.P. 128.86

$L = 4.04 \text{ miles} = 21,331.2$

① Rehabilitation Cost:

$$21,331.2 \times 137.37/L.F. = \$2,930,267$$

② Replacement Cost:

$$21,331.2 \times 264.92/L.F. = \$5,651,062$$

Structure Rehabilitation

Str. # 859

\$ 100,000

Section VII

Rehabilitation total : \$ 3,030,267

Replacement total : \$ 5,651,062







## Summary

Section M.P.	Rehabilitation			Replacement	
	Rdwy Interch.	Struct.	Total	Rdwy	Struct.
<u>I</u> 58.00 - 69.86	<del>8,456,850</del> 8,498,060 3,000,000	1,700,000	13,198,060 <del>12,156,850</del>	<del>16,309,160</del> 16,388,630	
<u>II</u> 69.86 - 91.66	<del>15,707,710</del> 15,740,680 3,000,000	2,100,000	20,840,680 <del>20,807,710</del>	<del>30,292,540</del> 20,356,120	
<u>III</u> 91.66 - 94.12	<del>1,733,990</del> 1,742,240 3,000,000	300,000	5,042,240 <del>5,033,990</del>	<del>3,344,030</del> 3,359,930	
<u>IV</u> 94.12 - 106.95	9,305,770 3,000,000	800,000	13,105,770	17,946,320	
<u>V</u> 106.95 - 109.54	<del>1,743,990</del> 1,818,710 3,000,000	900,000	5,718,710 <del>5,693,710</del>	<del>3,459,730</del> 3,507,410	
<u>VI</u> 109.54 - 124.82	<del>11,062,670</del> 11,070,910 3,000,000	1,000,000	15,062,670 <del>15,070,910</del>	<del>21,334,510</del> 21,350,410	
<u>VII</u> 124.82 - 128.86	2,930,270	100,000	3,030,270	5,651,060	
<b>TOTAL SEGMENT EWW-100</b>	<del>50,991,250</del> 51,106,620 18,000,000	<del>6,900,000</del> ?	<del>75,891,250</del> 76,006,640	<del>98,537,550</del> 98,559,880	







### EWV-100 REHABILITATION

ASSUME 3" OVERLAY ON PAVEMENT AND SHOULDER  
X% BASE REPAIR & SHOULDER REPLACEMENT.

$$\begin{aligned} \text{COST/LF} &= 2(25')/9 \text{ SF/SY} [8.91^{\$/\text{SY}} + X(65.00^{\$/\text{SY}})] \quad \text{MAINLINE} \\ &+ X(2 \text{ SIDES}) \left( \frac{4}{11} + 1 \right) 26.20 + (1-X) \left[ \frac{2(4'+11')}{9 \text{ SF/SY}} \right] 8.91^{\$/\text{SY}} \\ &= 5.56 [8.91 + 65X] + 71.45X + (1-X) 29.70 \\ &= 49.54 + 361.4X + 71.45X + 29.70 - 29.70X \\ &= 79.24 + 403.15X \end{aligned}$$

$$10\% : \$119.56/\text{LF}$$

$$15\% : \$139.71/\text{LF}$$

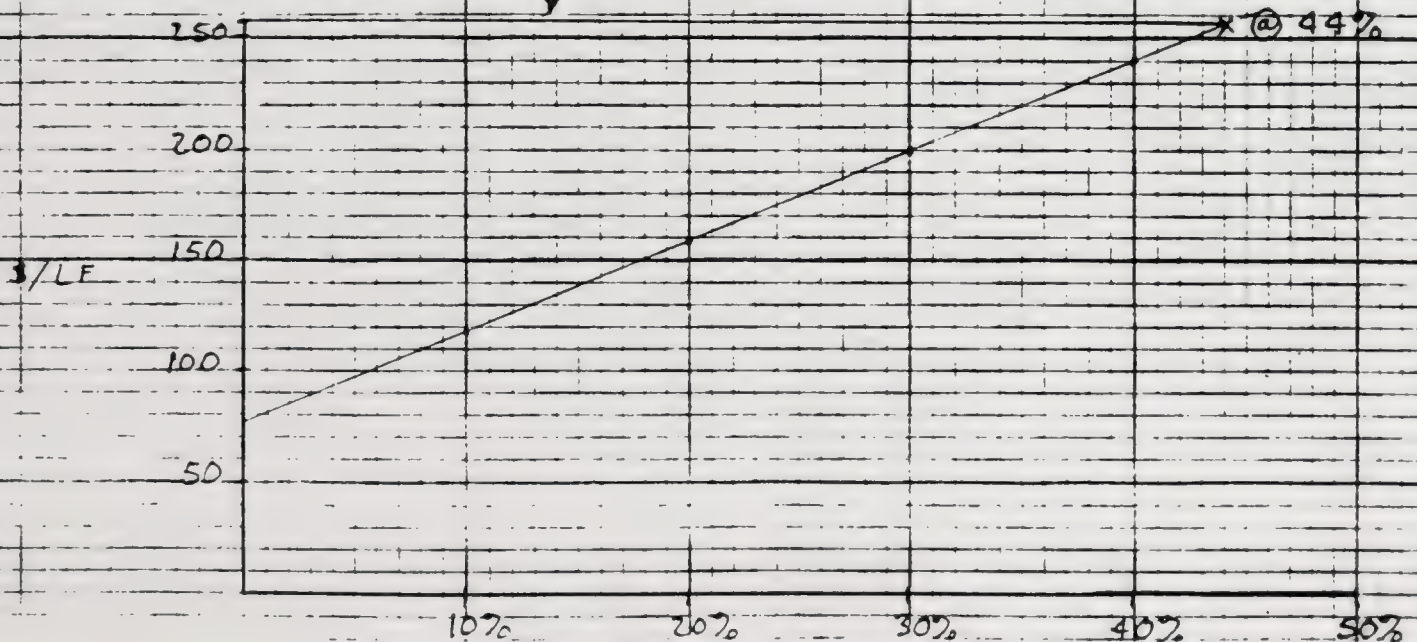
$$20\% : \$159.87/\text{LF}$$

$$50\% : \$280.82/\text{LF}$$

CONTINGENCIES, ETC. NOT ADDED, BECAUSE THEY APPLY TO BOTH OPTIONS

### EWV-100 PAVEMENT REPLACEMENT (OVER $\approx$ 1,600 L.F. CONTINUOUS PAVING)

$$\begin{aligned} \text{COST/L.F.} &= 2(25')/9 \text{ SF/SY} [29.70^{\$/\text{LF}}] + 2 \left( \frac{4}{11} + 1 \right) 26.20^{\$/\text{LF}} + \left[ \frac{2(25'+11'+9')}{27} \right] \times 7.00^{\$/\text{CY}} \\ &= \underline{\underline{\$257.20/\text{L.F.}}} \end{aligned}$$



% FULL DEPTH BASE REPAIR







ENVIRODYNE  
ENGINEERS

Job No. 3328 Project: 56701 10-YR PROGRAM  
Subject: COMPARE EWW REHAB VS REPLACE  
By: PDM Date: 8-17-89 Ck: \_\_\_\_\_  
Sheet 2 of \_\_\_\_\_  
Date: \_\_\_\_\_


### ECONOMIC COMPARISON

- ASSUME REHAB/OVERLAY LIFE = 10 YRS
- ASSUME REPLACEMENT LIFE = 20 YRS
- ASSUME INTEREST = 5%

$$(A/P, 5, n) \quad n=10: 0.1295 \quad (1.61 \text{ TIMES } n=20 \text{ VALUE})$$
$$n=20: 0.0802$$

$$\text{ANNUAL EQUIVALENT EXPENSE OF REHAB} = P_{\text{PAVEMENT REPAIR}} (0.1295)$$

$$\text{ANNUAL EQUIVALENT EXPENSE OF REPLACE} = \$257.20 (0.0802) = \$20.63;$$

$$\text{IF } 10\% \text{ BASE REP: } A = \$119.56 (0.1295) = \$15.48;$$

$$15\% \quad " \quad A = \$139.71 ( " ) = \$18.09;$$

$$20\% \quad " \quad A = \$159.87 ( " ) = \$20.70.$$

∴ @ 20% BASE REPAIR, THE EQUIVALENT ANNUAL COST OF PAVEMENT REHABILITATION IS APPROX. EQUAL TO THE ANNUAL COST OF REPLACEMENT.







# I PAVEMENT —

## ① REHABILITATION COSTS

Ⓐ 15% BASE REPAIR

Ⓑ 3" BIT. OVERLAY

Ⓒ 3" SHOULDER OVERLAY

Ⓓ 3% M.O.T. COST

$$\left\{ (2 \times 25' / 9 \text{ SF/SY}) \times \left[ 0.15 (6500 \$/\text{SY}) + 8.9 \$/\text{SY} \right] + \left[ 2 (11' + 4') / 9 \text{ SF/SY} \right] 8.9 \$ \right\} \times 1.03$$

$$= \underline{\underline{\$137.37 / \text{L.F.}}}$$

## ② REPLACEMENT COSTS

Ⓐ 12" PCC PAVEMENT

Ⓑ NEW SHOULDER LT & RT

Ⓒ REMOVE OLD PAVEMENT & SHOULDER

Ⓓ 3% M.O.T. COST

$$257.20 (1.03) = \underline{\underline{\$264.92 / \text{L.F.}}}$$

# II. STRUCTURES —

FOR TOLLWAY-TRAFFIC CARRYING BRIDGES: \$100,000 / STRUCTURE REHAB  
FOR BRIDGES CARRYING LOCAL, I.DOT, RR TRAFFIC: \$ 0.

# III. INTERCHANGES — ESTIMATE \$3,000,000 / INTERCHANGE REHAB COST





### 3.8 ILLINOIS ROUTE 47

Location: East-West Tollway, M.P. 124.8

Type: Existing - Half Diamond to and from west  
Proposed - Half Diamond to and from east  
Unsignalized Ramp Termini

Description: Ramps to and from the east would be constructed to provide a complete diamond interchange at this location. The anticipated traffic volumes and operational requirements are satisfied by the construction of this type of interchange. No toll plaza is required at this interchange. The proposed entrance and exit ramp to and from the east will be constructed within the existing right of way limits of the Tollway.

Toll Plaza: None required.

Capital Cost:

		<u>Ramps</u>	<u>Ramps &amp; Crossroad</u>
<u>Construction:</u>			
Roadway & Drainage		\$519,000	\$ 519,000
Pavement		319,000	339,000
Structures			
Util., Appurt. & Misc.		479,000	<u>577,000</u>
			<u>1,435,000</u>
<u>Yearly Maintenance and Operating Costs:</u>			
1986	33,300	1996	\$ 67,600
1987	35,800	1997	72,600
1988	38,400	1998	78,000
1989	41,200	1999	83,800
1990	44,000	2000	90,000
1991	47,300	2001	96,700
1992	50,800	2002	103,900
1993	54,600	2003	112,000
1994	58,600	2004	120,400
1995	62,900	2005	129,400

Inflate from 1984 to 1990:  $1.06^{20 \text{ in. } 6 \text{ years}} = 1.42$

$$1.42 \times 1,435,000 = \underline{\underline{\$2,037,700}}$$







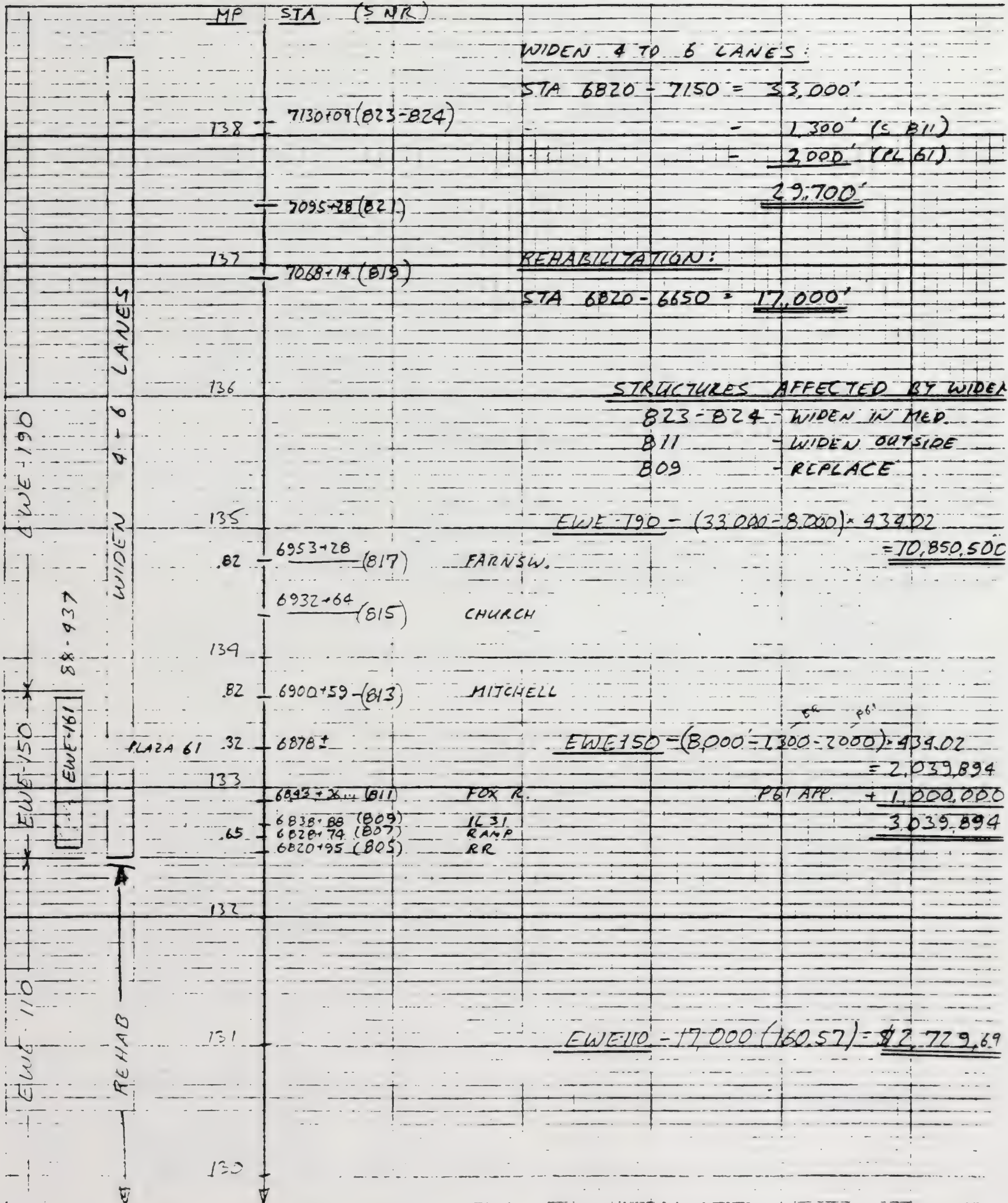






# ENVIRODYNE ENGINEERS

Job No. 3328 Project: 56701  
Subject: EWE-100 COST - ROAD LENGTHS  
Sheet 1 of       
By: COM Date: 8-9-89 Ck:      Date:     









6932

## ROADWAY

WIDEN 4 TO 6 LANES: STA 7150+00  
 STA 6820+00  
~~330+00 = 3,000' (= 4.17 mi)~~

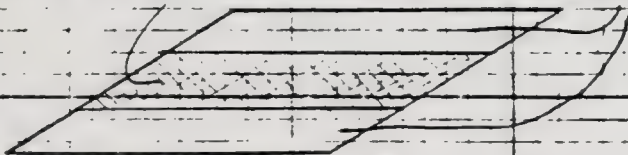
REHAB 4 LANES: STA 6730+00  
 6650+00  
 280+00 =  
 (PLAZA 67:13282-1355) = 67+06  
~~212+94 = 21,294' (= 4.03 mi)~~

WIDEN SECTION:  
 WIDEN = \$224.43 / LF  
 EXISTING 4 LANE REHAB = \$115.89 / LF (INCLUDES 15% BASE REP.)  
 REPLACE SHOULDERS =  
 $2 \times 26.20(6') + 2 \times \frac{11.1}{24}(700) = \$58.10 / LF$   
 $30,700 \times \$12,231,494$   
 $\$398.42 / LF \times 22,000 = \$8,765,321 (2.10\%)$

REHAB ONLY SECTION:  
 ROWY = \$115.89 / LF  
 RT SHOULDER = \$58.10 / LF  
 LT SHOULDER = \$26.41 / LF  
 $17,000 \times \$3,406,800$   
 $\$200.40 / LF \times 21,294 = \$4,267,398 (1.06\%)$   
 $15,638,294$   
 $\$13,032,719$   
 $4,563,829$   
 10% GR + DR = \$1,303,272  
 $\$14,335,991$   
 $\$17,202,123$   
 ADD 3% M.O.I. = \$17,720,000

## STRUCTURES

823-824, E-W OVER RR:  
 $226' \times 54' \times \$100/SF + 2(226' \times 36') \times \$25 =$   
 $= \$1,827,200$   
 SAY \$1,700,000



811 E-W OVER FOX RIVER:  
 $1324' \times (12' + 11') \times 2 \times \$100/SF =$   
 $= \$6,090,400$

809 IL31 OVER EW:  
 $220' \times 80' \times \$100/SF =$   
 $= \$1,760,000$

807 RAMP OVER EW:  
 $220' \times 52' \times \$100/SF =$   
 $= \$1,144,000$







# ENVIRODYNE ENGINEERS

Job No. \_\_\_\_\_ Project: COST ESTIMATE  
Subject: \_\_\_\_\_  
Sheet \_\_\_\_\_ of \_\_\_\_\_  
By: COS Date: 8-29-89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_


Fox River Bridge - E-W Tollway (Widening)

STEEL AREA  
DESIGN

ITEM No	ITEM DESCRIPTION	UNITS	QUANTITY	PRICE	AMOUNT
206C	STRUCTURE EXCAVATION	Cu.Yd.	1600	25	40,000
	COFFERDAM Exc. (Rock)	Cu.Yd.	750	75	56,300
	COFFERDAMS	EACH	6	30,000	180,000
501A	CLASS D CONCRETE	Cu.Yd.	1805	375	678,900
501B	CLASS P CONCRETE	Cu.Yd.	1290	325	419,300
502AB	PREST. GIRDERS (48"), FURNISH	L.F.	2610	65	169,700
502B3	PREST. GIRDERS (48"), ERECT	L.F.	2610	15	39,100
	FURNISH & ERECT STR. STEEL	LBS.	2,373,000	2.00	4,746,000
	EXPANSION ARMOR STEEL	LBS.	78,400	2.50	196,000
504A	REINFORCING STEEL	LBS.	161,500	0.55	88,800
504B	REINFORCING STEEL, EPOXY	LBS.	315,900	0.65	205,300
505H	FURNISH STEEL PILES	L.F.	450	20	9,000
505I	DRIVE STEEL PILES	L.F.	450	5	2,300
507	CONCRETE REMOVAL	Cu.Yd.	650	300	195,000
515H	SCURPER	EACH	53	450	23,800
515C2	PVC DRAIN PIPE 6"	L.F.	2400	35	84,000
518	ELECTROMEC BENTONITE	EACH	36	400	14,400
525A1	BRIDGE EXPANSION JT.	L.F.	390	200	78,000
	BRIDGE LONG. JOINT	L.F.	2655	150	398,200
528A	BRIDGE PILECAP	Cu.Yd.	276	475	131,100
617	SLOPE WALLS	Sq. Yd.	460	45	20,700

TOTAL \$ 7,775,900

$$\text{COST/FT}^2 = \frac{7,775,900}{1327.17(2)(24.58)} = 119.18/\text{FT}^2$$







ENVIRODYNE  
ENGINEERS

Job No. \_\_\_\_\_ Project: COST ESTIMATE  
Subject: \_\_\_\_\_  
By: COS Date: 8-30-89 Ck: \_\_\_\_\_ Sheet \_\_\_\_\_ of \_\_\_\_\_  
Date: \_\_\_\_\_


FOX RIVER BRIDGE, E-W TOLLWAY (WIDENING)

STEEL R GIRDER  
DESIGN

STEEL ARCH DESIGN

\$ 7,775,900

ADDITIONAL PIER CONC.

+ 186,600

ADDITIONAL PIER REIN.

+ 39,600

REDUCTION IN STRUCTURAL STEEL

- 1,907,000

TOTAL

\$ 6,095,100

$$\text{COST / FT}^2 = \frac{6,095,100}{1327.17(2)(24.58)}$$

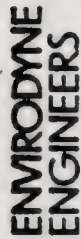
\$ 93.42

COST DECREASE OVER ARCH DESIGN

$$\% \text{ INCREASE} = \frac{(119.18 - 93.42)}{119.18} \times 100 = \underline{\underline{21.6\%}}$$



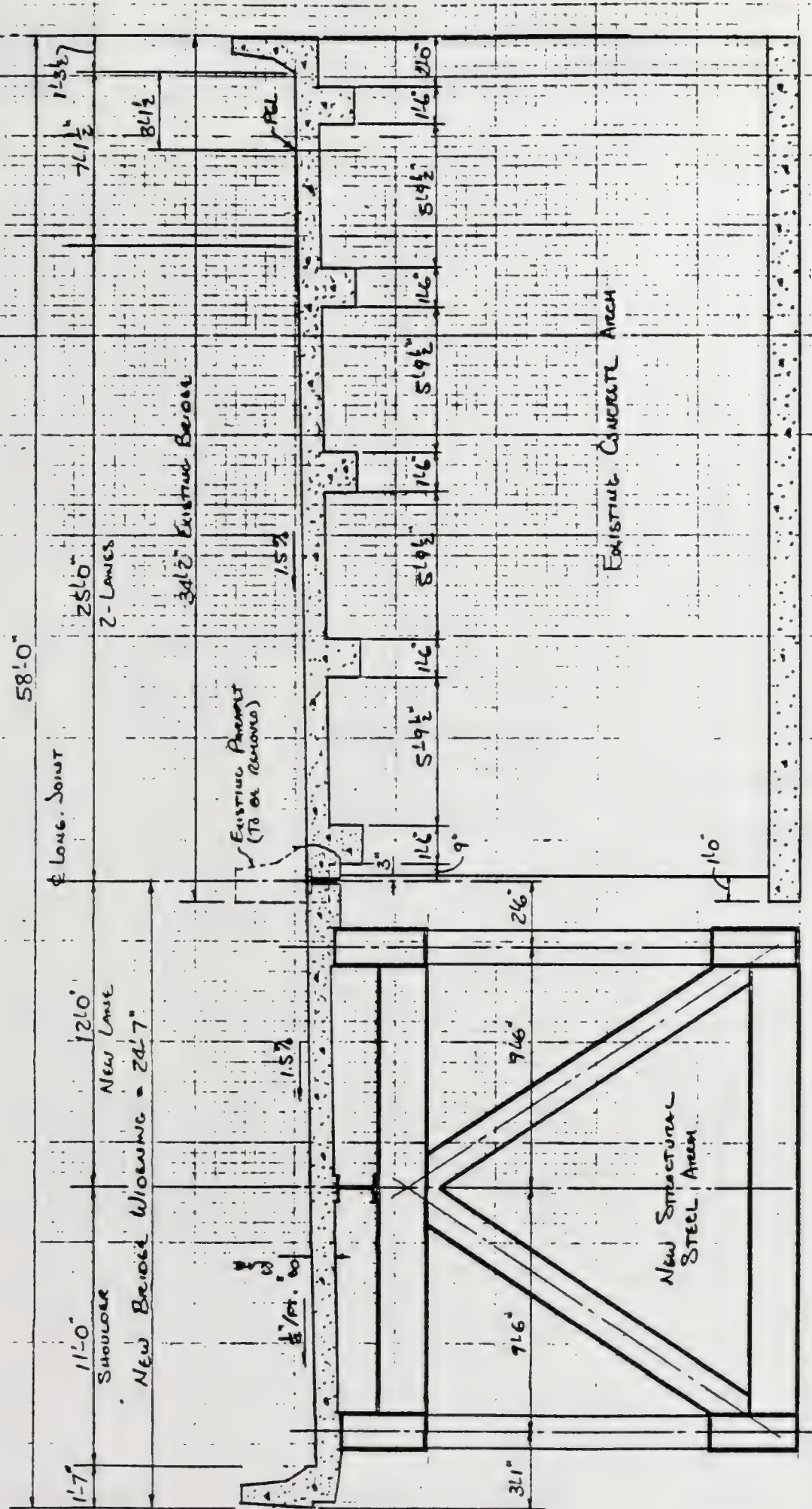




By: WOS Date: 8-22-89 Sheet 1 of 1

Proposed Fox River Bend Widening  
E-W Turnway

--	--	--









ALL REHAB - 6 LANE:

138.60	7150+00	BEGIN 6-LANE EWE-210	
	7167+66	IL59	825
		RIVER RD	827
	7243+15	H.B. DUTAGE	829-830
	7295+61	MILL RD	831
	7338+35	WASH ST.	833
142.60	7365+00	END EWE-210	
143.00	7387+20		

STA 7365+00

= 7150+00

$$21,500' \times \begin{matrix} \text{REHAB} \\ \text{SMOOR} \end{matrix} \begin{matrix} \text{NO 157.} \\ \end{matrix} \begin{matrix} (171.52 + 58.12) \\ (242.31 - 11.11) \end{matrix} = \begin{matrix} \$4,936,810 \\ \$9,970,000 \end{matrix}$$

ADD 3% NOT \$5,084,935

SAY \$5,100,000

NOTE: 15% BASE REPAIR IS EXCESSIVE, BUT  
 ALLOWS FOR FUTURE NEEDS UNFORESEEN.  
 THIS WILL MOST LIKELY BE A LOW PRIORITY JOB  
 NOT BUILT UNTIL '96 OR LATER.

ALSO, NO PRESENT BITUMINOUS SURFACE - NOT FULLY DONE NEEDED.

MILL ST: 4 ramps (1.5M) = \$6,000,000

2 places (= 2 lanes) = 391.5 = \$1,566,000







# ENVIRODYNE ENGINEERS

Job No. 3328 Project: 56701  
Subject: EWE-100 / 250 / 300 CHANGES  
By: PDM Date: 10-2-89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_  
Sheet \_\_\_\_\_ of \_\_\_\_\_



1. FORT 1990s CYCLE - JUST REHAB.

EWE-150 - JUST 437 PROJECT

-190 - (25000 LF - 160.57) = \$9,074,250 NO BRIDGE REHAB

EWE-250 - NEW LIMITS:

NAPERVILLE RD - IL53

- 13,300  $\times$   $\frac{242.51}{642.35}$  = \$3,222,723 6 LANE REHAB.  
6 LANE

EWE-300 - ADD NS - IL53 SEGMENT:

1,716 LF  $\times$  642.35 = 1,102,283

2,639,837

305,150

9,048,060 - ADDED TO EWE-300  
ROADWAY COST.







7390+00 B35-B36 0 RAMP B NO WIDEN  
 B37-B38 0 NAPLerville RD WIDEN WB ONLY

7474+87 B39-B40 0 YACKLEY RD WIDEN 2 SIDE

7504+00 B41-B42 0 EB DUPAGE "

7510+65 B43-B44 0 WARRENVILLE RD "

7523+09 B45-B46 0 IL 53 "

7540+25

4TH LANE BUILT

7557+00

7562+95

7572+60

7625+00

ALL STRUCTURES WIDENED AND  
 REHABILITATED IN 1986-1987, SO  
 CALCULATE \$75/SF FOR WIDENING ON  
 RIGHT PLUS \$100,000 GENERAL REHAB

B35-B36: 100,000 = \$100,000

B37-B38:  $(17' \times 157.75) 100 + 100,000 = \$289,300$

B39-B40:  $2(12' \times 147) 75 + 100,000 = \$364,800$

B41-B42:  $2(12' \times 179) 75 + 100,000 = \$422,200$

B43-B44:  $2(12' \times 184) 75 + 100,000 = \$431,200$

B45-B46:  $2(12' \times 200) 100 + 100,000 = \$580,000$

## HIGHWAY REHAB & WIDEN

ASSUMPTIONS - AVG CUT/FILL < 10'

- NO RIW REQUIRED (THIS APPEARS CORRECT ON X-SECT)
- 15% BASE REPAIR IS ADEQUATE

①  $L = 754,025 - 739,000 = 15,025$   
 $\times \$582.71/L.F.$

\$8,756,119

③  $L = 965 + 1675 = 2,640$   
 REHAB 4 LANES = \$115.80

\$305,950

②  $762,500 - 754,025 = 8,475 L.F.$   
 $\times 2 SIDES$

16,950 L.F.

$-(758,260 - 756,295) = 965 L.F.$

$-(755,700 - 754,025) = 1,675 L.F.$

6 B NO REHAB 14,310 L.F.

$\times (\$203.44 - \$76.91 + \$115.89/2) = \$189.98$

\$2,639,837

TOTAL ROADWAY:

8,756,119

2,639,837

305,950

\$11,701,903

ADD 32% MOTF

\$12,050,000





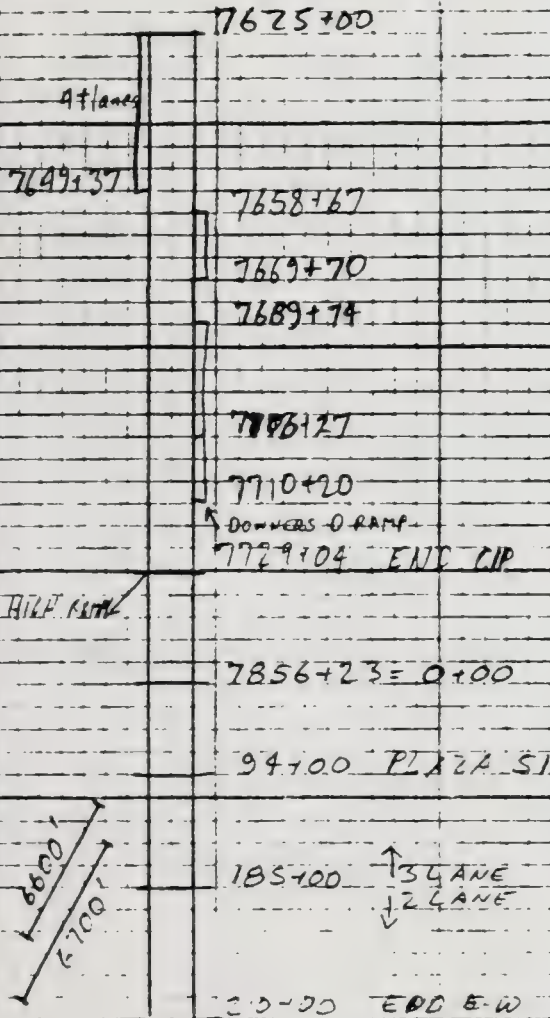


# ENVIRODYNE ENGINEERS

Job No. 3328 Project: 56701  
 Subject: EWE-300  
 Sheet \_\_\_\_\_ of \_\_\_\_\_  
 By: PDM Date: \_\_\_\_\_ Ck: \_\_\_\_\_ Date: \_\_\_\_\_



LENGTHS: WIDEN 3-4 - ASSUME NO FILL OR STRUCTURE WIDEN:



CONNECTOR: SAY 6700 LF  $\times$  160.57 = \$1,075,819

+ 2 RAMPS + 600,000  
\$1,780,000

## N-S CONSTRUCTION AREA:

NO EMBANKMENT WORK OR STRUCTURE WORK  
 IN AREAS W/ 4TH LANE BUILT - USE COST FOR  
 3-LANE REHAB:

\$242.31 / 2 DIRECTION  
 = \$121.16 / LF

WIDEN 3-4 LANE: \$450.40 / 2 DIRECTION  
 = \$225.20 / LF

$L_3 = 764937 - 762500 = 2,437$

$766970 - 765867 = 1,103$

$771020 - 768974 = 2,046$

$L_3 = 5,586$  LF

$\times 121.16$

\$676,800

$L_4 = (772904 - 762500) \times 2 = 5,586$

$= 15,722$  LF

$\times 225.20$

\$3,427,994

TOTALS: 676,800

3,427,994

11,793,770

5,047,680

2,205,021

401,425

23,552,690

## REMAINDER WIDENED SECTION

FROM END OF N-S AREA TO STA 68, SAY  
 AVG 10' FILL (ACTUALLY VESS):

$L = 6800 + 785623 = 77904$

$= 19,519$

$\times \$604.22$

\$11,793,770

STA 68 TO 90+ - USE AVG 16' WALL:

2200

$\times (494.40 + 900 \times 2)$

\$5,097,680

6 LANE REHAB (185-94)100  $\times$  242.31 = 2,205,021

4 LANE REHAB (210-185)100  $\times$  160.57 = 401,425







# ENVIRODYNE ENGINEERS

Job No. 3328 Project: 56701  
Subject: \_\_\_\_\_  
By: PDM Date: REV 10-9-89 Ck: \_\_\_\_\_  
Sheet \_\_\_\_\_ of \_\_\_\_\_  
Date: \_\_\_\_\_


## STRUCTURES

B49:	222 x 58 x 25	321,900	(SQUEEZE)
B51:	252 x 60 x 25	378,000	( " )
B53:	220 x 57 x 25	313,500	( " )
B55-6:	260 x 92 x 100	<del>3390,000</del>	( " )
213	250 x 70 x 25	437,500	(SQUEEZE)
275-6:	132 x 150 x 25	495,000	
277	135 x 38 x 25	128,250	
273	360 x 38 x 25	342,000	
215-6:	320 x 122 x 25	976,000	
201	392 x 64 x 25	627,200	
279	233 x 64 x 25	372,800	
299	215 x 40 x 25	215,000	

PLAZA 51 - 20 EXISTING LANES x \$900K/LANE + 8 NEW LANES x \$1M/LANE  
= \$16,800,000





ENVIRODYNE ENGINEERS, INC.

Record of Telephone Conversation

Date: Oct 11, 1989

Job No.: 3328

Time: 954-1000 hrs

Subject: 10yr Plan

Contact: Mel Surakowski

Changeable Message Signs

Initiated By: ☐ Caller ☒ EEI

Instructions or Data

Obtained (Transmitted): Call deal for input:

1. Use 1 portable sign for each maintenance area.  
Price is \$40,000 each put in 1990 program.
2. Fixed Changeable Message Signs at the following locations:  
N/S Butterfield SB, Ogden NB  
EW Naperville EB, Highland WB  
NW Plaza 1 EB  
TGN Plaza 21 SB  
TSC DEMPSTER SB, North Ave NB  
TSS Plainfield NB  
each sign costs \$80,000. Put in 1994 1yr work.

Deadlines or Meetings Set: \_\_\_\_\_

COPIES TO: P. Miller

file 56701

By C. Dumas







ENVIRODYNE  
ENGINEERS

Job No. 3328 Project: 56701  
Subject: CHANGEABLE MESSAGE SIGNS  
By: PDM Date: 10-11-89 Sheet      of       
Ck:      Date:     


1990: 1 MOBILE / M-YARD  $\times$  \$40,000  $\times$  11 M-YARDS = \$440,000

1994: 9 FIXED SIGNS  $\times$  \$80,000 = \$720,000







# ENVIRODYNE ENGINEERS

## RECORD OF TELEPHONE CONVERSATION

Route to:

FILE

Date: 10/16/89  
Time: 3:00p I  
Contact: Name: John Benda  
Affiliation: ISTHA  
Phone No.: \_\_\_\_\_

Job No.: 3328-56701  
Subject: ICE DETECTION SYSTEM SITES

Initiated by: \_\_\_\_\_ Contact \_\_\_\_\_ Author \_\_\_\_\_

Sheet No.: 1 of 1

Summary of Discussion: John returned my call concerning Maintenance  
requirements for ice detectors on the system: they are needed in interval  
up to 30 miles and at key locations, such as Bensenville Bridge - Mile Long  
Bridge, N-S @ Army Trail Rd, etc. They are currently fixed @  $\approx$  \$90,000/  
location.

Action Required: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

cc: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Author: \_\_\_\_\_







ENVIRODYNE  
ENGINEERS

Job No. 3328 Project: \_\_\_\_\_  
Subject: 56801  
NEW TECH. Sheet \_\_\_\_\_ of \_\_\_\_\_  
By: PDM Date: 10/25/89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_


SAY  $15 \times \$40,000 = \$600,000.$









PDM



ENVIRODYNE  
ENGINEERS

168 North Clinton Street  
Chicago, Illinois 60606  
(312) 648-1700  
FAX (312) 648-4544

October 25, 1989

Mr. Antoine Karam, Chief Engineer  
Illinois State Toll Highway Authority  
2001 West 22nd Street  
Oak Brook, Illinois 60521

Subject: 10-Year Program Update  
Applications of  
Modern Technology

Dear Mr. Karam:

As requested on October 6, 1989 at the Director's briefing regarding the 10-Year Program, EEI has looked into applications of modern technology to tollway operations. To date, we have developed some information and basic costs on programmable message signs, patron call box system, ice monitoring system and AVI.

For programmable message signs, Mel Sierakowski gave us nine locations for permanent signs at \$80,000 each, and we included a mobile sign for each maintenance district at \$40,000 each, for a total project cost of \$1,160,000. This project is included in the 10-Year Program.

Bob Farrell from the New York State Thruway told us that the call box system they are familiar with typically is installed for about \$7,500/box, one on each side of the road, at 1/2 mile intervals. The interval is variable and can be whatever the Authority desires. These boxes are independent signal transmitters, not phones, with three buttons: for accidents, police or vehicle breakdowns. When the box cover is opened, a magneto generates enough power to send the signal to the nearest microwave tower where the message is passed on to CA. On our system, at 4 boxes/mile, the cost would be about \$8,200,000. There is virtually no maintenance involved with these call boxes, which are used in 13 states, most heavily in Florida. This project is not included in the 10-Year Program.

John Benda believes that ice detectors would be optimally placed approximately every 30 miles, at key locations such as the North-South Tollway at Army Trail





# ENVIRODYNE ENGINEERS

Illinois State Toll Highway Authority  
October 25, 1989  
Page Two

Road, and at major structures such as the Mile Long Bridge or Bensenville Bridge. Their price is currently fixed at about \$40,000/location. With 15 potential sites, this project would cost \$600,000. This project is not included in the 10-Year Program.

We spoke with Chris Hill at Castle Rock Consultants, Leesburg, VA about their experience with AVI. The Dulles Tollway in suburban Washington, D.C. is pursuing application of AVI now.

In their system, two AVI sensors will be installed in every lane, and there will be one reader for eight sensors (this duplicity is for increased reliability). Dulles has two mainline barriers and several ramp barriers, and all lanes in all barriers will have AVI sensors installed. The mainline barriers will initially have one lane dedicated to AVI only - the other lanes will have AVI equipment for patrons with cards, but will also take conventional manual or automatic collection.

The AVI dedicated lane has a mountable curb which begins around 500' ahead of the barrier itself, to segregate traffic. The dedicated AVI lanes will be expanded as traffic warrants, which may be soon, since the marketing survey leads them to expect 65% initial participation on the Dulles project.

According to reports, the most reliable system involves a semi-active shortwave transponder attached to subscriber vehicles. These are essentially the account cards, affixed to the vehicle, and currently are costing about \$50 each. Hopefully the price will come down as volume goes up.

Unit "rule of thumb" costs are \$7,500/reader and \$2,30/sensor with \$1,500 for installation. EEI recommends for initial conceptual estimates the assumption that the entire system, all lanes in all toll plazas have AVI equipment installed, and one automatic and one manual mainline plaza lane be converted to dedicated AVI use for the appropriate vehicles. We presume many commercial operators would highly value the



# ENVIRODYNE ENGINEERS

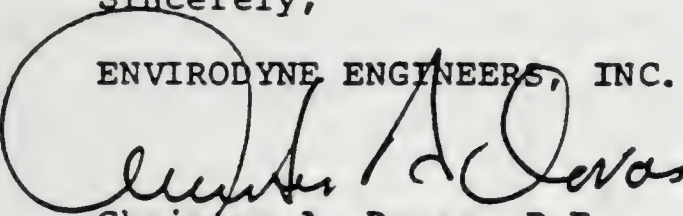
Illinois State Toll Highway Authority  
October 25, 1989  
Page Three

potential savings in travel time and fuel consumption gained by not having to come to a complete stop and wait in manual lane queues. We also estimated \$100,000/ mainline plaza for reconfiguring per lane to dedicated AVI service. This total cost becomes \$9,994,000. Other costs include signing modifications, central EDP equipment, and account management equipment including transponder cards. This project is included in the 10-Year Program.

We request your review and guidance on including the Call Boxes and ice detectors in the 10-Year Program. If you have any questions, please do not hesitate in contacting us.

Sincerely,

ENVIRODYNE ENGINEERS, INC.



Christos A. Dovas, P.E.  
Project Manager

CAD/PDM/dkz  
ID: 0487K  
File 56701

cc: M. Sierakowski  
K. Susinskas







# ENVIRODYNE ENGINEERS

Job No. 3328 Project: 56701  
Subject: AVI COST  
By: POM Date: 10/25/89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_  
Sheet \_\_\_\_\_ of \_\_\_\_\_



<u>PLAZA NO.</u>	<u>NR READERS</u> (@ \$7,500)	<u>SENSORS</u> (@ \$3,800)	<u>OTHER</u>	<u>Σ</u>	
47	2	12		60,600	
45	2	10		53,000	
43	2	10		53,000	
41	7	56	400,000	665,300	+1
39	8	64	400,000	703,200	+2
37	2	16	400,000	475,800	+1
35	7	56	400,000	665,300	+2
33	5	36	200,000	379,300	+1
29	4	32	200,000	351,600	+1
27	2	16		75,800	
26	2	12		60,600	
25	8	64	400,000	903,200	+2
23	1	8		37,900	
22	1	8		37,900	
21	4	32	400,000	551,600	+2
31	1	8		37,900	
32	1	8		37,900	
19	3	24	200,000	313,700	+1
17	4	32	200,000	351,600	+1
14	7	52	400,000	650,100	+2
12	1	8		37,900	
13	1	4		37,900	
9	3	24	400,000	513,700	+2
7	3	24	400,000	513,700	+2
5	3	20	400,000	498,500	+2
3	1	8		37,900	
2	1	8		37,900	
1	3	20	200,000	298,500	
69-71	2	12	200,000	260,600	
66	2	12	200,000	260,600	
67	1	4		22,700	
65	1	4		22,700	
63	1	4		22,700	
61	3	20	200,000	298,500	







ENVIRODYNE  
ENGINEERS

Job No. \_\_\_\_\_ Project: \_\_\_\_\_

Subject: \_\_\_\_\_

Sheet \_\_\_\_\_ of \_\_\_\_\_

By: \_\_\_\_\_ Date: \_\_\_\_\_ Ck: \_\_\_\_\_ Date: \_\_\_\_\_


59	1	8	37,900
57	1	8	37,900
56	1	8	37,900
55	1	4	22,700
53	1	6	30,300
51	8	60	400,000
			<u>688,000</u>
			$\frac{+2}{+26}$
			\$9,999,000
			+ SIGNING CHARGES
			CA EDP EQUIP







Job No. 3328 Project: 56701  
Subject: PLAZA COST SUMMARY w/ & w/o AVI  
Sheet 1 of 2  
By: PDM Date: 11/7/89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_



— INCORPORATES AVI AND CHANGES / CORRECTIONS —

PLAZA	AVI (Cost Transm. Sys)		AVI Σ	* - IN AVI MP CONTRACT <del>CHANGES BY OTHER CONTRACTS</del> PLAZA			
	# READERS (7.5K/)	# SENSORS (3.8K/)		LANE ST SIGNS (100K/AVI LT) (25K/RAMP)	EXPAND \$ (391.5K/LANE)	REHAB \$ (100K/LANE + 50K/SITE)	\$
47	2	12	61	* 100	2349		2449
45	2	10	53	* 100	-	550	850
43	2	10	53	* 100	-	550	850
41A	1	4	23	0 50	783	-	833
41B	2	16	76	0 100	3132	-	3232
41	2	56	265	0 400	SEC 85-351	-	400 +
40	2	8	45	* 50	-	-	50
39	8	64	303	0 400	SEC 87-406	-	400 +
38	2	12	61	0 50	3550 est	-	3600
37	2	16	76	0 400	CIP	-	400 +
35	7	56	265	0 400	CIP	-	400 +
33	5	36	174	0 200	CIP	-	200 +
29	4	32	152	0 200	CIP	-	200 +
27	2	16	76	* 50	-	-	50
26	2	12	61	* 50	-	-	50
25	8	64	303	0 400	3550	-	3950
25E	1	8	38	0 50	1,566	-	1,616
23	1	8	38	0 50	880	-	930
22	1	8	38	* 50	-	-	50
21A	1	8	38	0 50	625 MNL 1,566	-	1,616
21	4	32	152	* 400	-	1650	2050
31	1	8	38	0 25	CIP	-	25
32	1	8	38	0 25	CIP	-	25
19	3	24	114	0 200	CIP	-	200 +
17	4	32	152	0 200	CIP	-	200 +
15	-	-	-	-	CIP	-	-
14	7	52	250	0 400	CIP	-	400 +
14A	1	8	38	0 50	1,566	-	1,616
12	1	8	38	0 50	1,566	-	1,616
13	1	4	23	0 50	CIP	-	50
11	-	-	-	-	CIP	-	-
9	3	24	114	0 400	-	1250	1650
3156				5050			







ENVIRODYNE  
ENGINEERS

Job No. 3328 Project: 56701  
Subject: \_\_\_\_\_  
Sheet 2 of 2  
By: PDM Date: 11/7/89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_



8	1	8	38	50	1,566	1,616
7	3	24	114	400	1250	1,650
5	3	20	99	400	1050	1,450
3	1	8	38	50	-	50
2	1	8	38	50	-	50
1	3	20	99	400	1050	1,450
69	1	8	38	200	450	650
70	1	2	15	25	100	125
71	-	2	8	25	100	125
66	2	12	61	200	650	850
67	1	4	23	50	200	250
65	1	4	23	50	250	300
63	1	4	23	50	250	300
61	3	20	99	400	SEL 88-937	400 +
59	1	8	38	100	450	550
57A	1	8	38	50	1,566	1,616
57	1	4	23	50	(1,566)	50
81	1	8	38	50	-	50
56	1	8	38	50	450	300
55	1	4	23	50	SEE 88-913	50 +
54	1	8	38	50	1,566	1,616
53	1	6	30	25	-	25
51	5	40	190	400	(1,566 x 11,000)	1,000
89	4	32	152	400	-	400
87	1	8	38	50	-	50
85	1	8	38	50	-	50
83	1	8	38	50	-	50
79	1	8	38	50	-	50
77	1	8	38	50	-	50
75	1	8	38	50	-	50
73	4	32	152	400	-	400
			1,704	4,275		
			3,156	5,050		
			9,860	9,325		

$$\Sigma * = 4,125,000 \times 1.25 = 5,156,250 + 2,562,500$$

+ 10 AUT STUDY DESIGNED





### 3.0 PROJECT LEDGER 1990-1999



10 YEAR PROGRAM UPDATE - ISTERA PROJECT LEDGER 1990-1999  
 FINAL REPORT--DATE: December 18, 1999

STUDY SECTION	MIP No	Remarks	Prior or 1999 Funding	Remaining Available	Un-allocated Estimate
TSS-100	86-382	Noisewall Study TSS	\$500,000	\$500,000	\$500,000
	85-350	I-80 Ramp A Bridge	\$1,000,000	\$827,036	\$500,000
	87-3920	Lincoln Oasis Ramps	\$700,000	\$700,000	\$700,000
	89-446	Signing Improve.	\$3,000,000	\$3,000,000	\$3,000,000
	99-999	Calumet-I80 Exp.			\$20,000
TSS-200	84-334	US6 (155th) Interch.	\$3,250,000	\$2,966,062	\$3,000,000
	85-351	Plaza 41 (153rd)	\$4,780,000	\$4,780,000	\$24,000
TSS-300	89-442A	Rehab 167-8, 171-3-5	\$800,000	\$758,970	\$800,000
	99-999	157-25th Rehab.			\$33,930
	00-999	157-25th Expansion	-----post-Year 2000 project-----		
TSS-400	87-406	Plaza 39 (83rd St.)	\$5,800,000	\$5,627,543	\$47,000
TSS-500	88-435	Mile Long Bridge	\$8,200,000	\$8,099,455	\$28,000
	99-999	MLB Approaches			\$6,043
TSS-600	89-448	Willow Springs Inter.	\$1,900,000	\$1,886,541	\$17,000
	99-999	MLB-ISS Expansion			\$15,700
TSS-700	99-999	ISS-Joliet Rehab.	50	50	\$1,100
CTSS Subtotal====>			\$259,503,000	(=====)	
-----					
		00-999 Expand A-S Lines: Ogden EM Term			\$18,000
		87-389 Bridge Rehab MP 30-37			\$2,900
		99-999 Balmain Ave. Interch			\$10,500
CTSC Subtotal====>			\$30,400,000	(=====)	
-----					
TSN-100	99-999	Dempster-Edens Expans.	50		\$39,000
TSN-225	90-450	Plaza 25 & LakeCook N.	50	50	\$24,900
	84-324	Deerfield Rd. Ramps	\$600,000	\$600,000	\$600,000
TSN-250	85-356	Fencing MP 53-59	\$750,000	\$749,750	\$750,000
	88-424	Deerfield Tower	\$400,000	\$400,000	\$400,000
	99-999	Widen 6-8 LaCook-Deer	50	50	\$31,250
TSN-210	89-440	Fencing MP 59-65	\$750,000	\$750,000	\$750,000
	99-999	IL60-IL176 Rehabili.	50	50	\$7,100
	00-999	IL60-IL176 Expansion	-----post-Year 2000 project-----		
TSN-300	99-999	IL176-US41 Rehab	50	50	\$47,100
	99-999	IL137 Ramps			\$5,262
TSN-ESP	85-355	Edens Spur Fencing	\$640,000	\$639,716	\$640,000
	99-999	Edens Spur Rehab & Int	50	50	\$9,400
TSN Subtotal====>			\$164,873,750	(=====)	
-----					
		86-373 Arlington Hgts Rd.	\$10,400,000	\$10,400,000	\$7,000
		87-385 Plaza 14 (Meacham)	\$9,600,000	\$9,600,000	\$27,000
NHE-200	85-357	Fencing MP 17-23	\$700,000	\$699,716	\$700,000
	86-372	Rehab Barr.#1290 Ramps	\$800,000	\$800,000	\$800,000
	88-419	Lights MP 19-25	\$800,000	\$793,641	\$800,000
	88-431	Fencing MP 11-17	\$300,000	\$299,609	\$300,000
	90-990	IL59 Ramps (by I00T)			\$11,290
	99-999	Roselle-Barrington Rds			\$19,290
	90-451	Widen Barrington-IL59			\$7,162
	90-452	Widen IL59-IL31			\$13,725
	99-999	Meacham Rd. Interch			\$13,400
	99-999	Roselle Rd. Interch			\$10,300
	99-999	Barrington Rd. Interch			\$6,570
NHE Subtotal====>			\$115,121,250	(=====)	
-----					
NHW-100	88-410A	Rehab MP 28-33	\$7,304,000	\$7,297,301	\$7,300
	78-421	Guardrail 18 28-33	\$1,000,000	\$1,499,926	\$1,500
NHW-109	99-999	Plaza 5			\$2,000
NHW-200	88-410B	Rehab MP 33-53	\$19,845,500	\$19,845,500	\$11,900
	88-411	Rehab MP 53-63	\$8,000,000	\$7,809,320	\$8,400
	88-420	Lighting MP 32-56	\$1,500,000	\$1,470,979	\$1,500
	88-421	Guardrail MP 43-60	\$1,800,000	\$1,799,926	\$1,800
	99-999	Plaza/M-Yard etc. fix			\$10,100
	99-999	Route 47 Interchange			\$5,750
NHW-300	88-414	Plaza 3 (US20) Improve	\$3,100,000	\$2,971,170	\$3,600
	99-999	Rehab MP 63-76			\$9,000
CNHW Subtotal====>			\$86,111,750	(=====)	
-----					
EMW-100	83-073	Guardrail MP 62-129	\$3,700,000	\$3,077,865	\$3,000
	85-349	Bridges MP 60-76	\$1,200,000	\$953,639	\$2,790
	88-425	Pavement Study	\$1,100,000	\$1,096,606	\$1,000
	88-427	M-11 Roof Rehab	\$250,000	\$250,000	\$250,000
	89-441	Rehab MP 70-79	\$2,000,000	\$2,000,000	\$10,000
	89-443	Bridges MP 107-108	\$1,500,000	\$1,500,000	\$1,500
	90-120	Rehab EM Roch-Dix (in addition to MIP 89-441)			\$2,110
	90-150	Rehab EM Aurora-CoLine			\$4,500
	90-140	Rehab EM CoLine-DeKH			\$21,500
	90-130	Rehab EM DeKH-Roch			\$23,362
	90-110	Rehab EM Dix-Rockfalls			\$1,000





#### 4.0 LEVEL OF SERVICE TRENDS

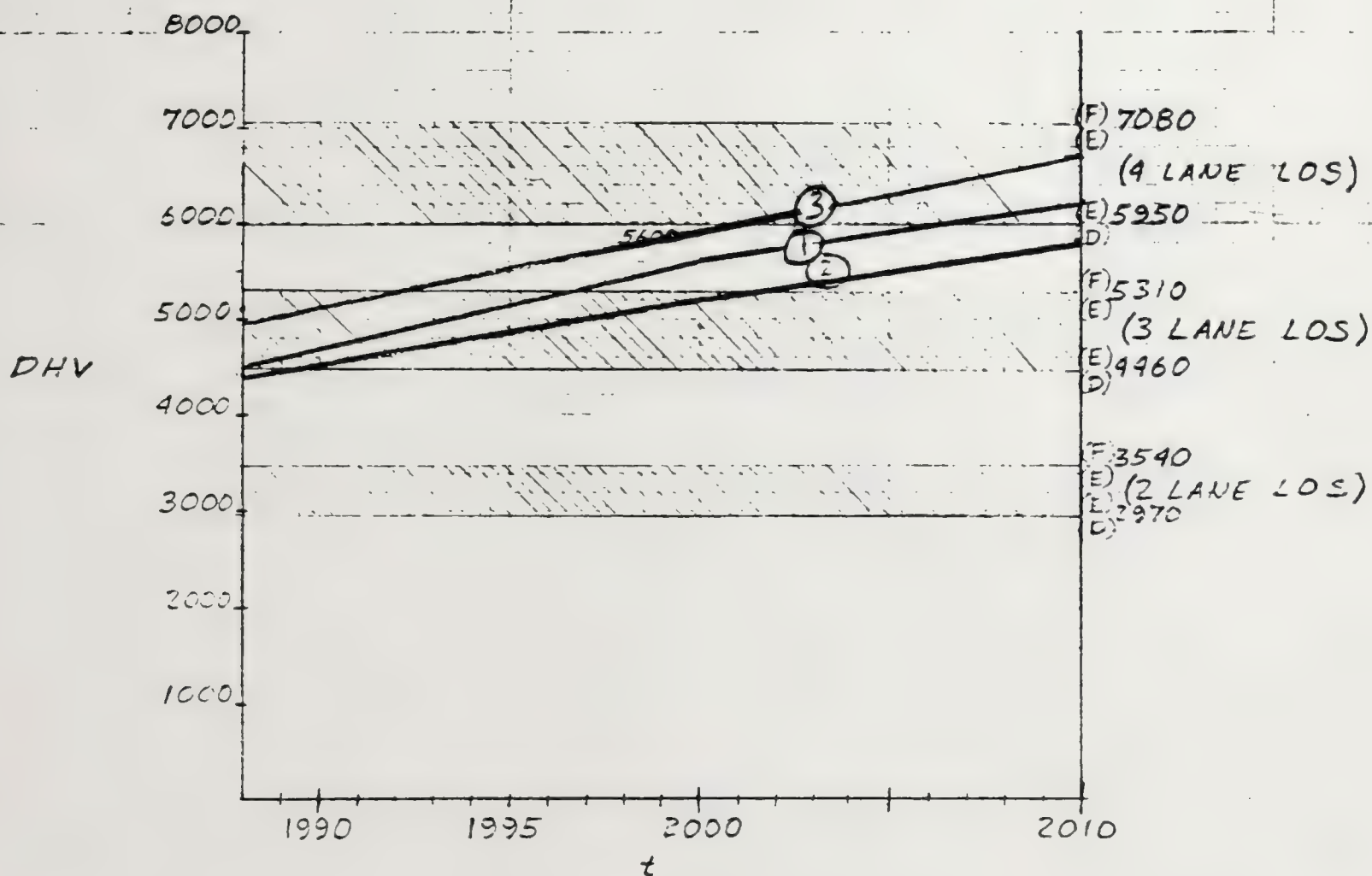
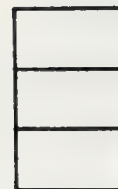






**ENVIRODYNE  
ENGINEERS**

Job No. 3328 Project: 56701  
 Subject: YEAR OF NEED CHART FOR CAPACITY  
TSS-100 Sheet      of       
 By: PDM Date: 9-12-89 Ck:      Date:     



- ① - CALUMET - IL 1 (HALETED)
- ② - IL 1 - DIXIE/WOOD
- ③ - DIXIE / - I-80

CONCLUSIONS:

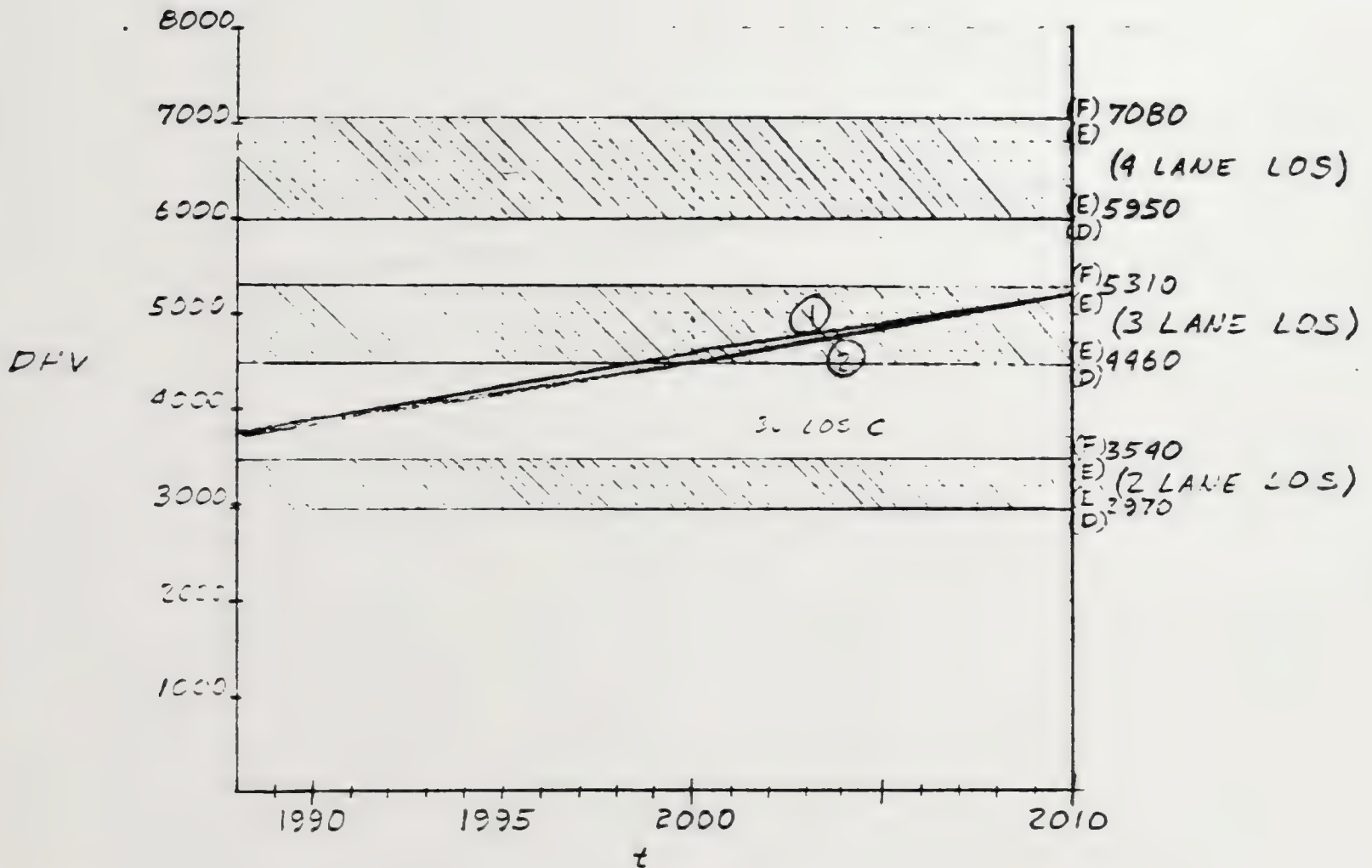
- 1)  $Y_{OE} = 1988$  ;  $Y_{E-F} = \text{FROM 1993 TO 2001}$
- 2) NEED 4+ AUXILIARY FROM DIXIE/WOOD TO I-80





ENVIRODYNE  
ENGINEERS

Job No. 3328 Project: 56701  
Subject: YEAR OF NEED CHART FOR CAPACITY  
TSS-200 Sheet \_\_\_\_\_ of \_\_\_\_\_  
By: PCM Date: 9-12-89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_

- ① - I-15 - 155th  
② - I-5 - 150th (127th)

$Y_{0-E} = \underline{1998}$  (NOT CONSIDERING TOLL PLAZA REQ'S)

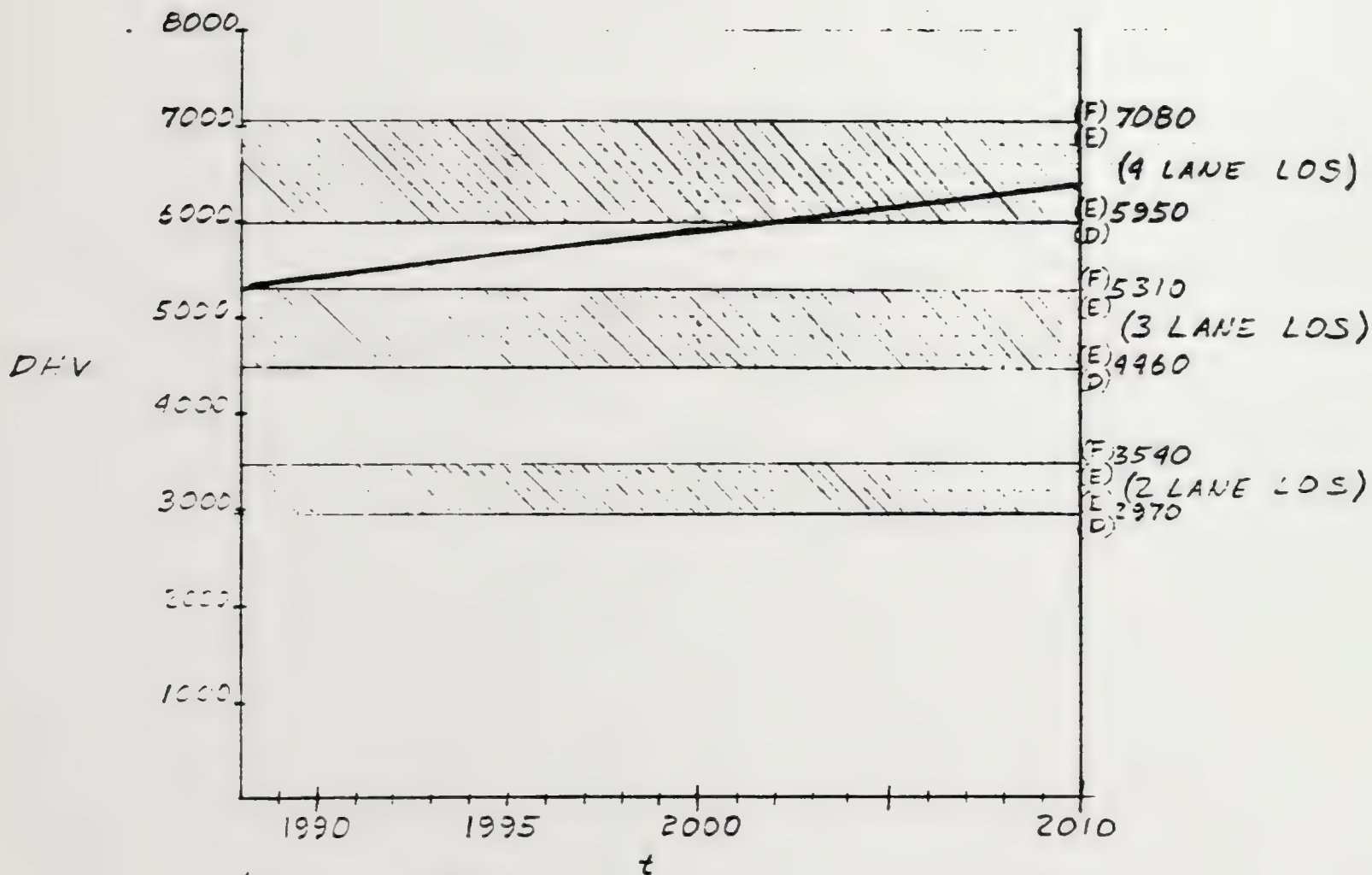






ENVIRODYNE  
ENGINEERS

Job No. 3328 Project: 56701  
Subject: YEAR OF NEED CHART FOR CAPACITY  
TSS-400 Sheet \_\_\_\_\_ of \_\_\_\_\_  
By: POM Date: 9-12-89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_

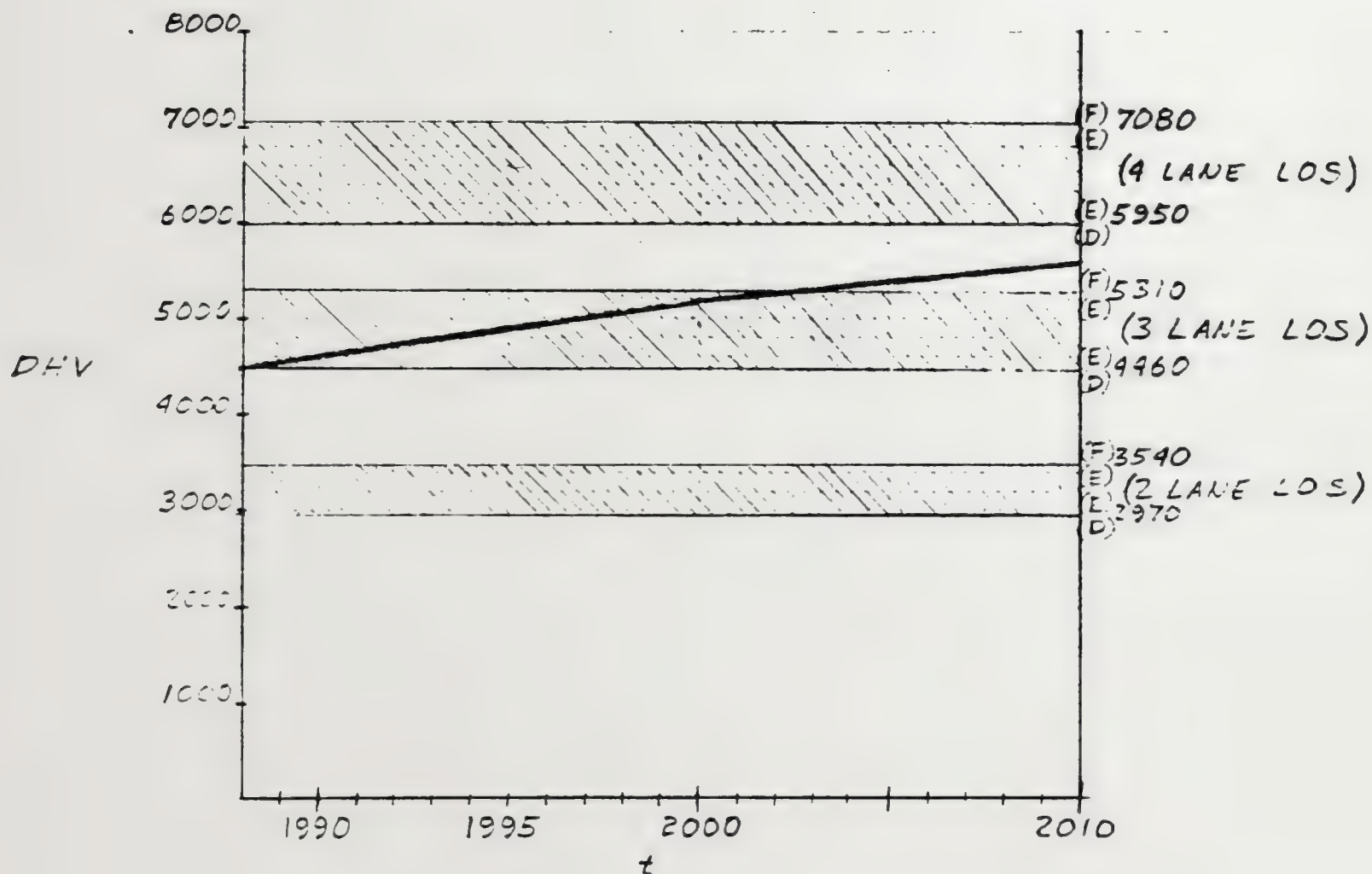
$Y_{D-E} = NA$

$Y_{E-F} = \underline{\underline{1988}}$

$Y_{G-L-E} = \underline{\underline{2002}}$







$$Y_{D-E} = \underline{\underline{1988}}$$

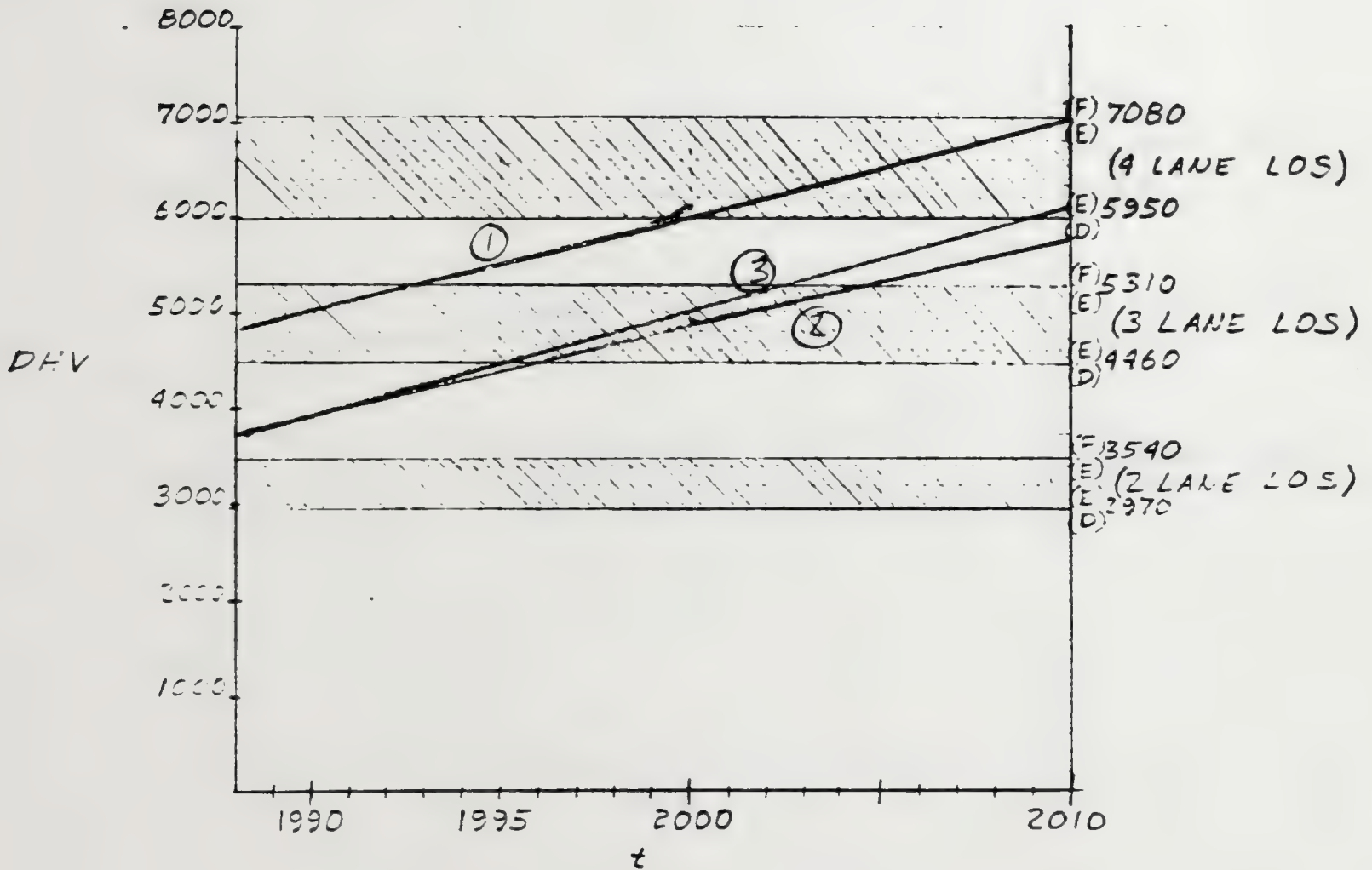
$$Y_{E-F} = \underline{\underline{2002}}$$





**ENVIRODYNE  
ENGINEERS**

Job No. 3328 Project: 56701  
 Subject: YEAR OF NEED CHART FOR CAPACITY  
TSN-250 Sheet        of         
 By: PCM Date: 9-12-89 Ck:        Date:       



① - EDEN ST. - DEERFIELD

② - DEERFIELD - IL22 (1/2 DAY)

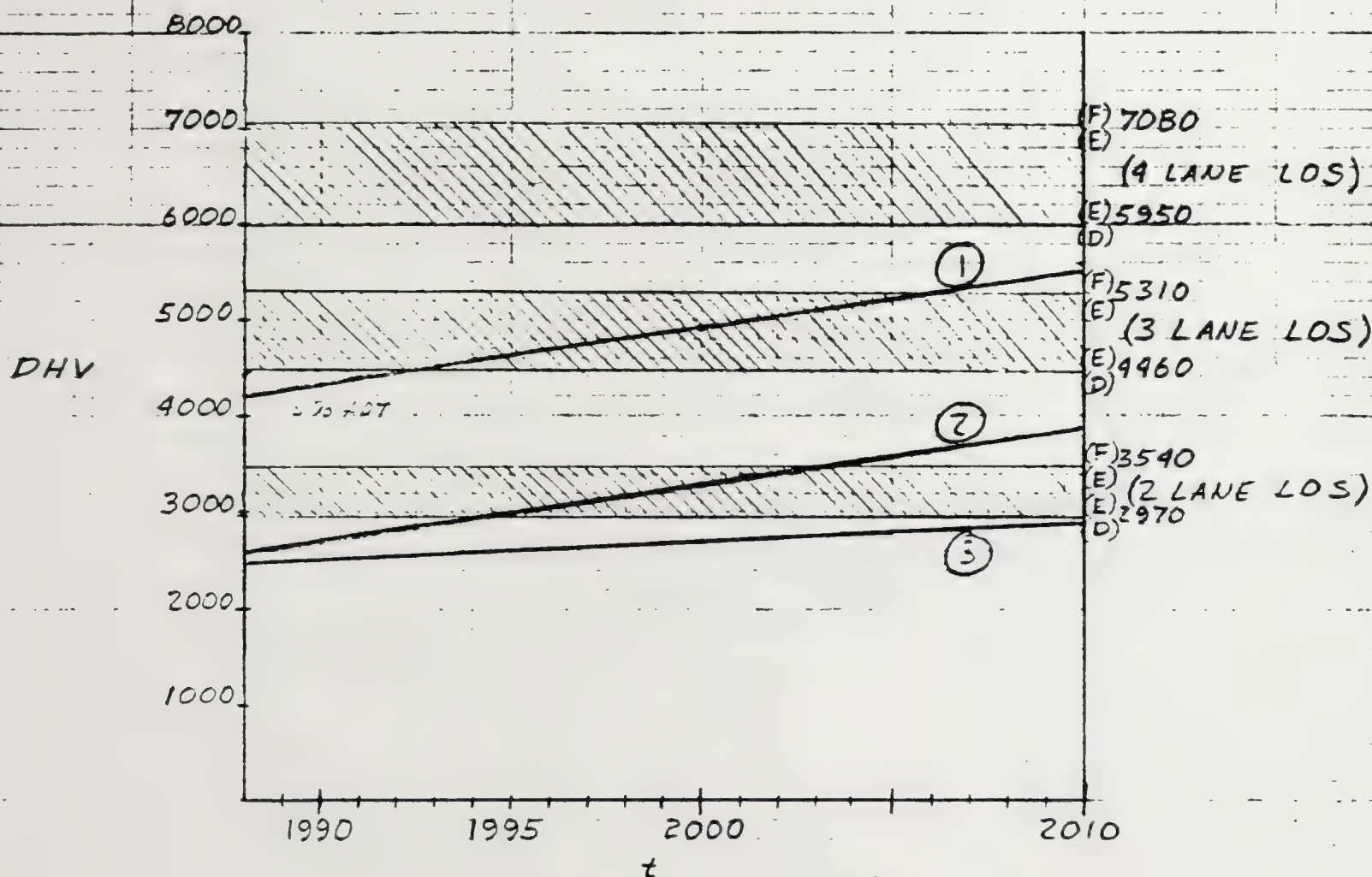
③ - IL22 - IL60 (TOWN LINE RD)

FOR ①:  $Y_{D-E} = NA$ ;  $Y_{E-F} = \underline{1993}$ ;  $Y_{D-E} = \underline{2000}$

② & ③:  $Y_{D-E} = \underline{1995}$ ;  $Y_{E-F} = \underline{2002}$







THIS SECTION'S ANALYSIS IS AFFECTED BY CONSTRUCTION OF IL59 EAST RAMPS. WHEN THEY ARE CONSTRUCTED, MEDIAN CLOSURE BETWEEN IL59 & BARRINGTON RD. WILL BE REQUIRED.

- ① ROSLIE - BARRINGTON
- ② IL59 - IL25
- ③ IL25 - IL21

$Y_{0-E} = \underline{\underline{1993-1994}}$

$Y_{E-F} = \underline{\underline{2003-2006}}$

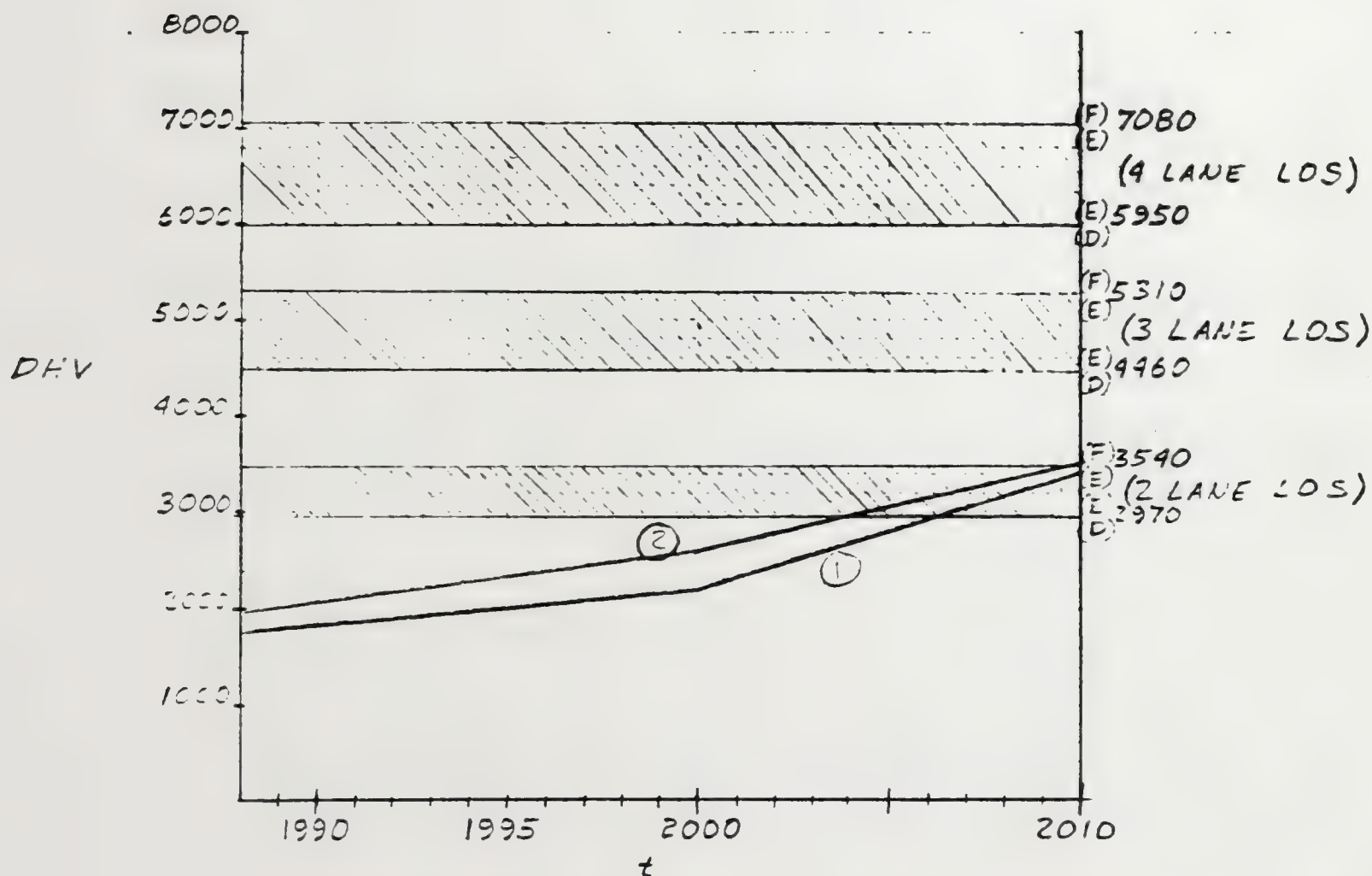






ENVIRODYNE  
ENGINEERS

Job No. 3328 Project: 56701  
Subject: YEAR OF NEED CHART FOR CAPACITY  
EW-150 & 190 Sheet        of         
By: PDM Date: 9-12-89 Ck:        Date:       



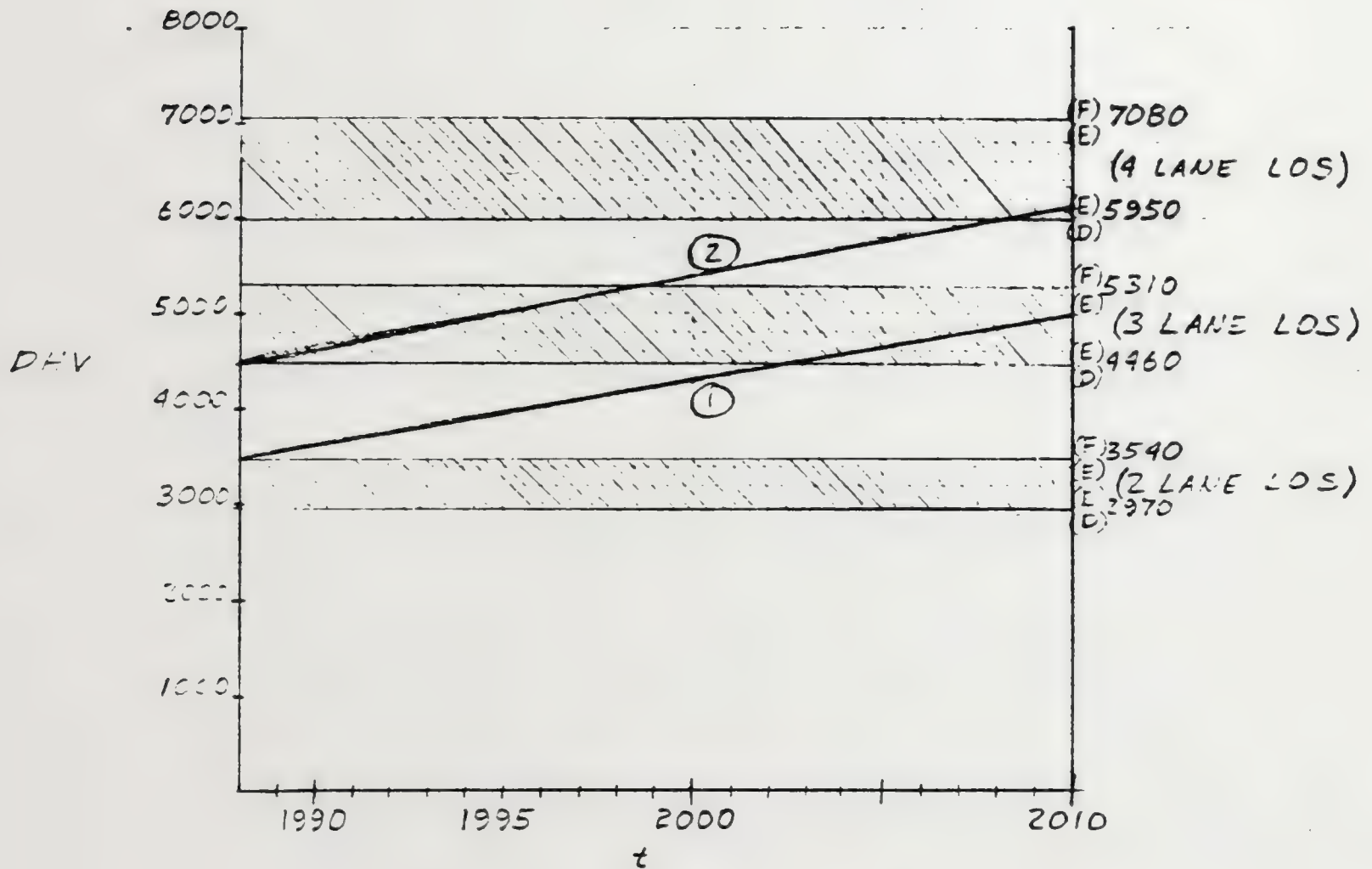
$Y_{o-c} = \underline{\underline{2006, 2004}}$





ENVIRODYNE  
ENGINEERS

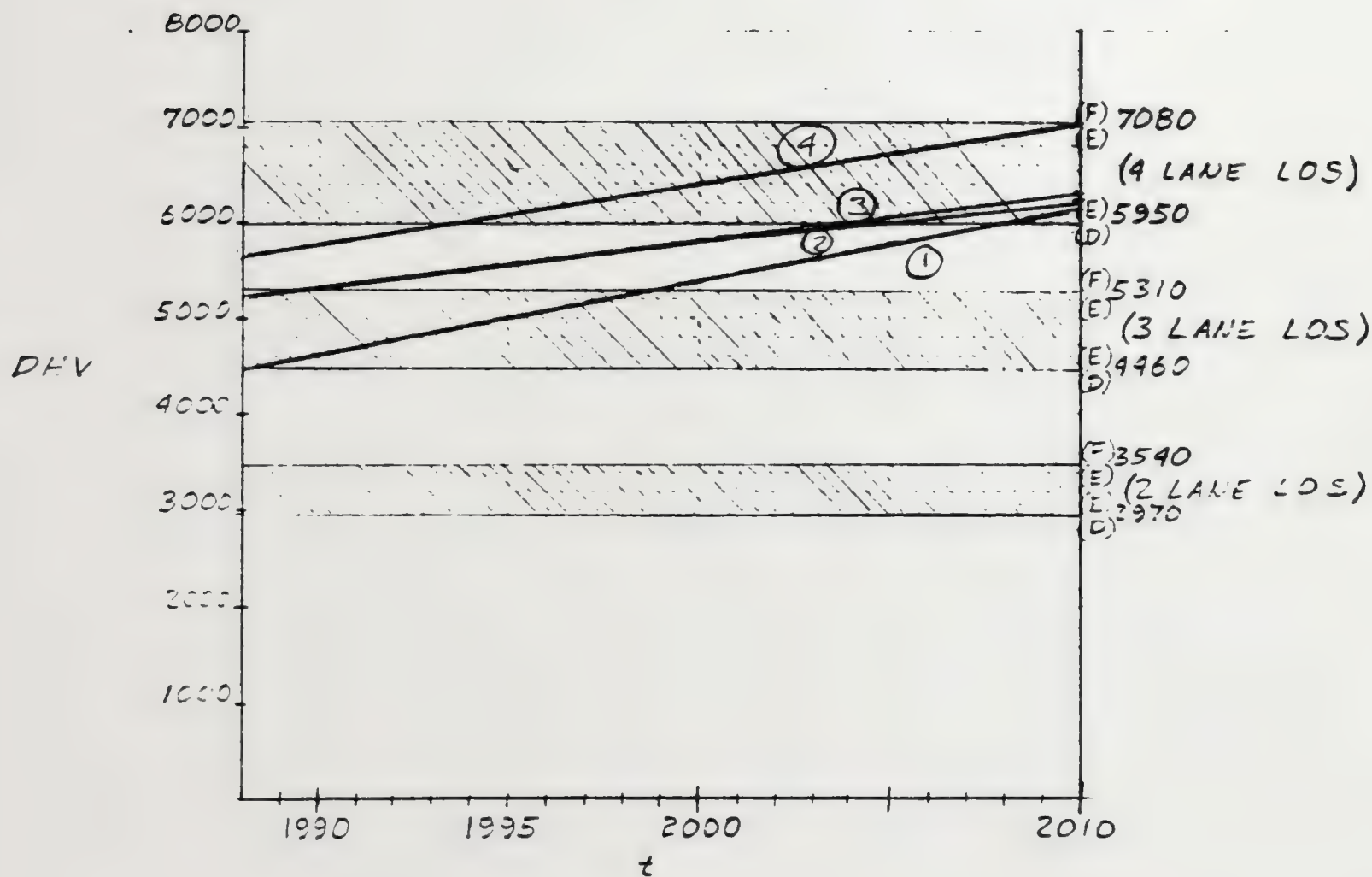
Job No. 3328 Project: 56701  
Subject: YEAR OF NEED CHART FOR CAPACITY  
EWE-250 Sheet        of         
By: PCM Date: 9-12-89 Ck:        Date:       



- ① NAILVILLE - ILES  $Y_{D-E} = \underline{\underline{2002}}$   
② ILES - NS  $Y_{D-E} = \underline{\underline{1988}}$   $Y_{E-F} = \underline{\underline{1998}}$   
 $Y_{40-E} = \underline{\underline{2008}}$







- |                               |                 |                 |                 |
|-------------------------------|-----------------|-----------------|-----------------|
| ① - NS - HIGHWAYS             | $Y_{DE} = 1985$ | $Y_{EF} = 1990$ | $Y_{DE} = 2008$ |
| ② - HIGHWAYS - MIDWEST        | = NA            | = 1990          | = 2004          |
| ③ - MIDWEST - ILEI (FINGERY)  | = NA            | = 1990          | = 2004          |
| ④ - ILEI - PLAZA 51 (YORK RD) | = NA            | = NA            | = 1994          |

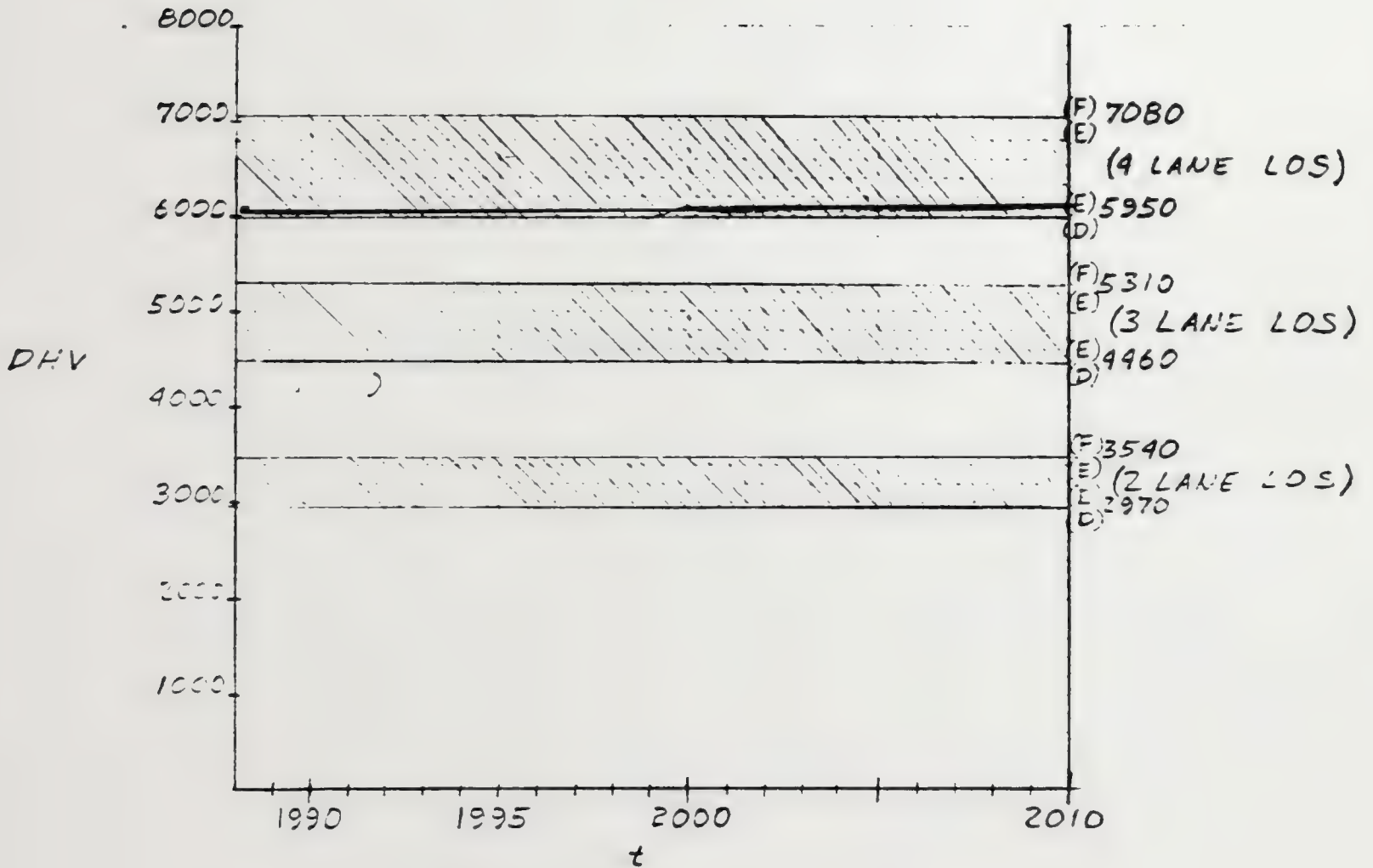






ENVIRODYNE  
ENGINEERS

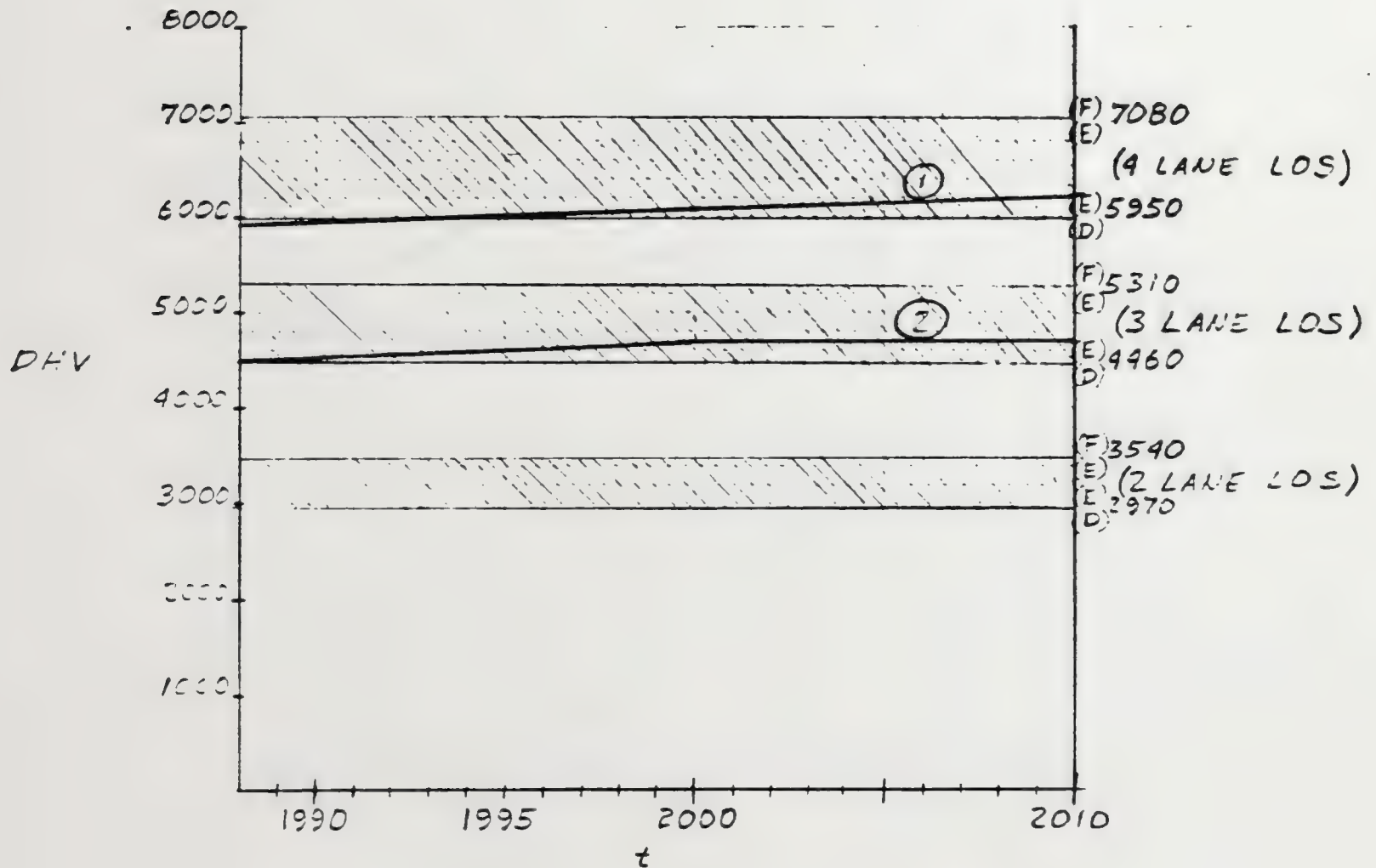
Job No. 3328 Project: 56701  
Subject: YEAR OF NEED CHART FOR CAPACITY  
CIP 660/661 July 7 - 1989 Sheet        of         
By: PDM Date: 9-12-89 Ck:        Date:       

$Y_{E-F} = 1994$  OR EARLIER

$Y_{SOL} = 1999$





$Y_{AE} = 1990 - 1991$

① US34 (OGDEN) - L.V. CONNECTOR

$Y_{OE} = 1990$

② EW CONNECTOR - ROOSEVELT  $Y_{OE} = 1938$   $Y_{EF} = NA$

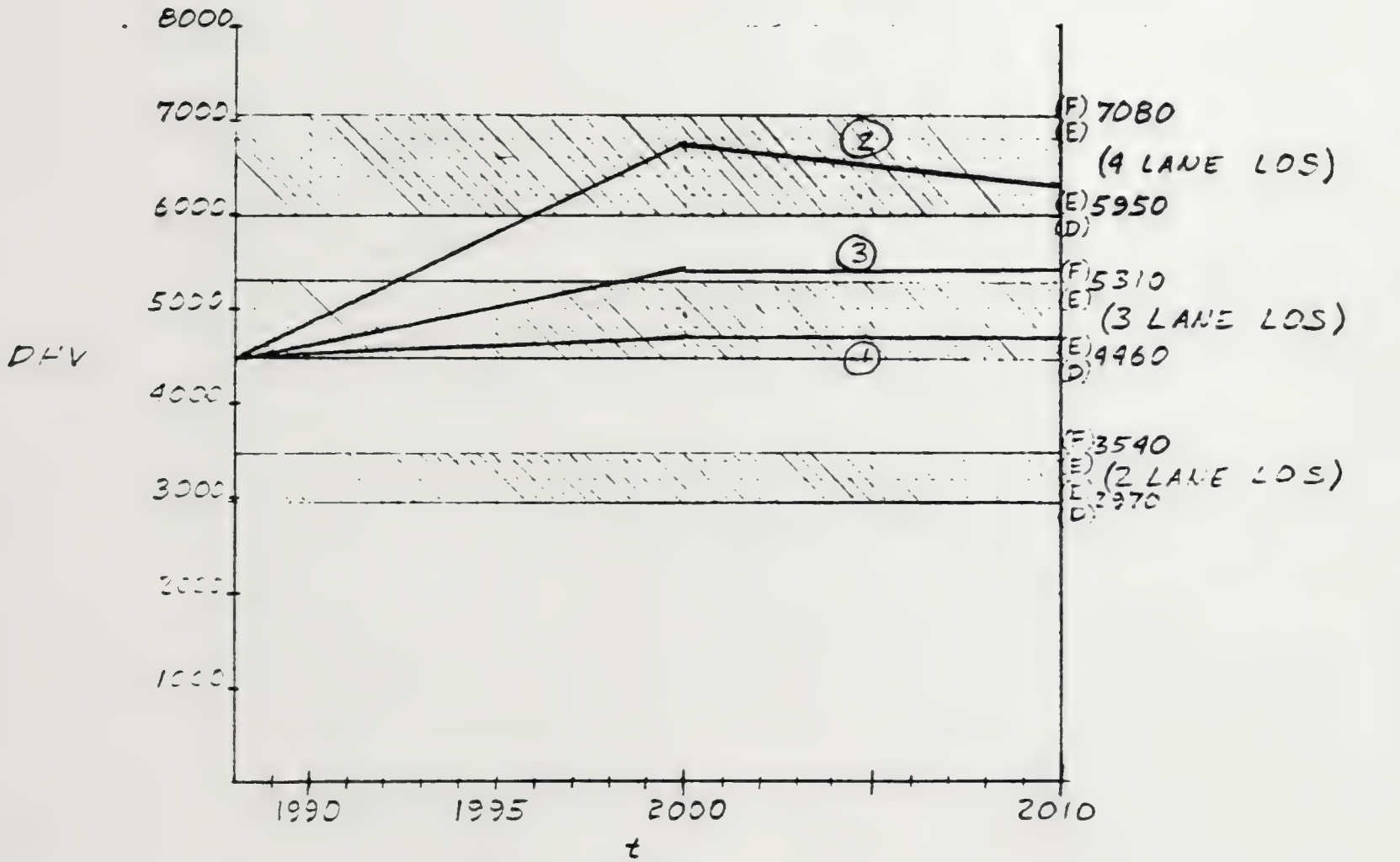






# ENVIRODYNE ENGINEERS

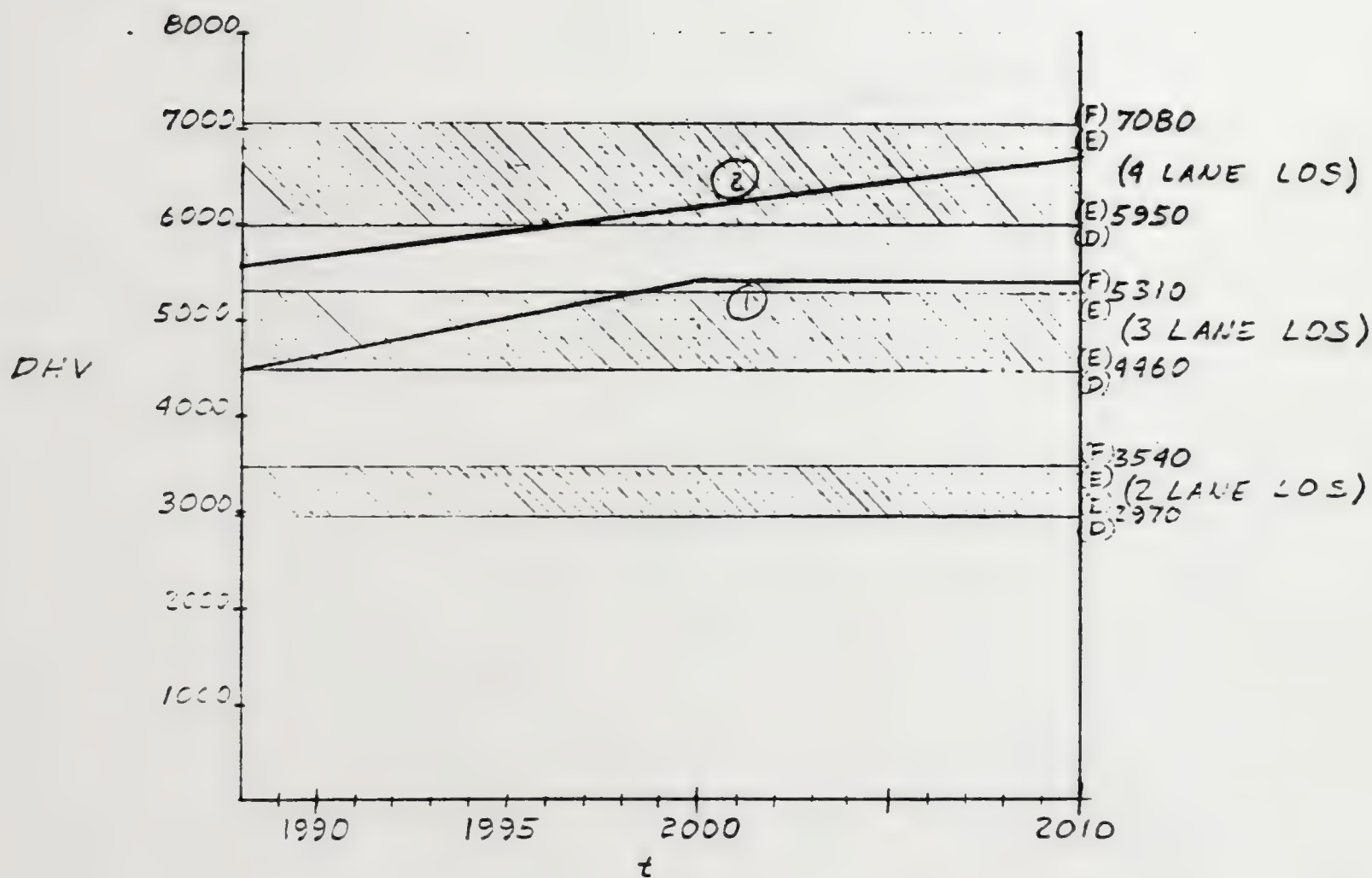
Job No. 3328 Project: 56701  
 Subject: YEAR OF NEED CHART FOR CAPACITY  
CIP-663 ROSS: 11 - ELECTRA. Sheet        of         
 By: PDM Date: 9-12-89 Ck:        Date:       



- ① - IL3E(R12-12) - EW  $Y_{0.1} = 1988$   $Y_{0.5} = NA$   
 ② - LW - I250 -  $Y_{0.1} = 1992$   $Y_{0.5} = 1992$   
 ③ - I250 - NCR741 -  $Y_{0.1} = 1998$







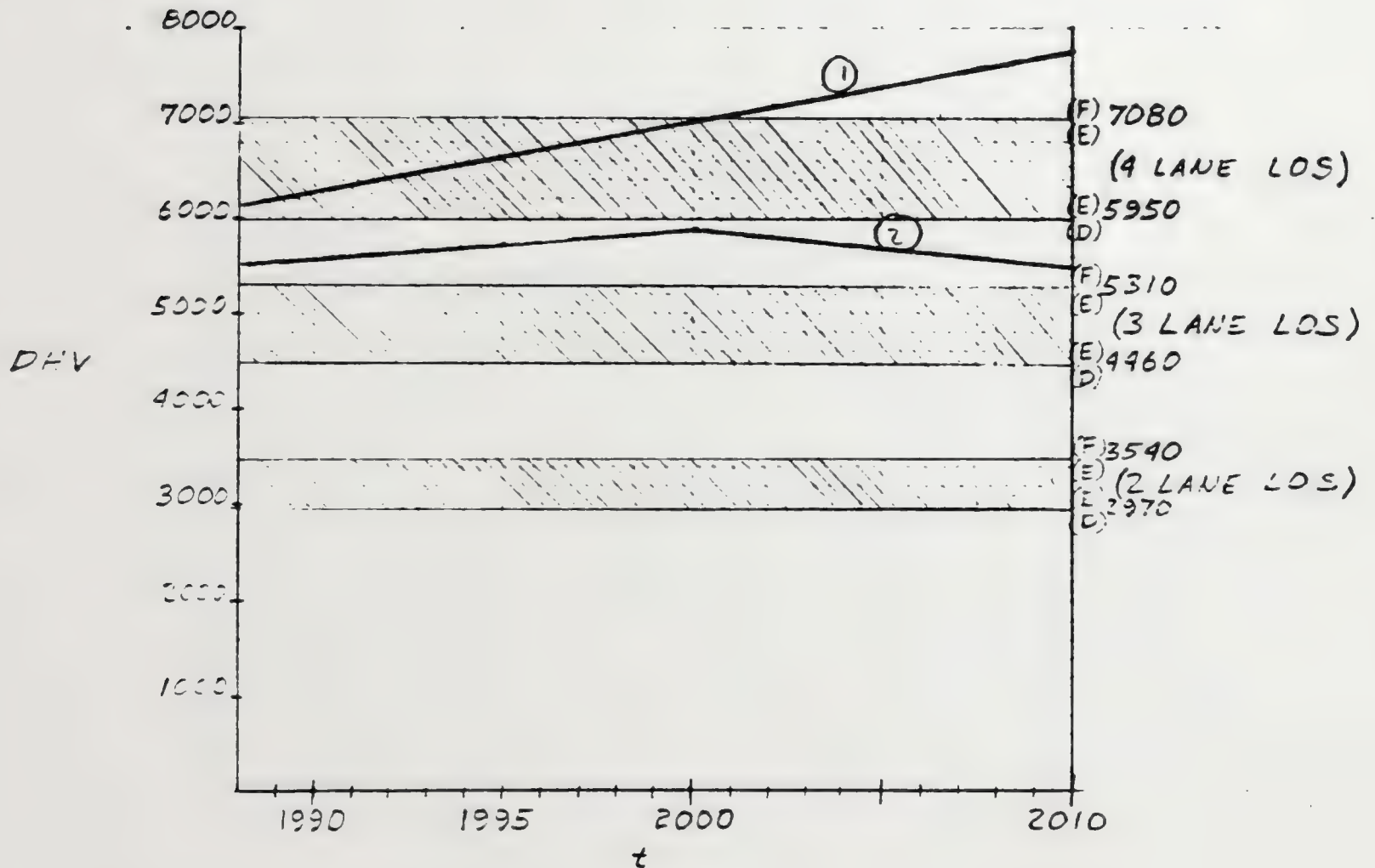
- ① I-290 - NORTH - (CIP 663 & 1/2 mile CIP 664)  $Y_{E,F} = 1998$   
 ② I-290 - SOUTH - (CIP 664-665)  $Y_{E,F} = 1988$   $Y_{SOL} = 1996$





ENVIRODYNE  
ENGINEERS

Job No. 3328 Project: 56701  
Subject: YEAR OF NEED CHART FOR CAPACITY  
CIP - 666 Sheet \_\_\_\_\_ of \_\_\_\_\_  
By: PDM Date: 9-12-89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_

① KENNEDY - NW  $Y_{500} = 1938$   $Y_{500} = 2000$   
② KENNEDY - NW  $Y_{500} = 1989$  — —

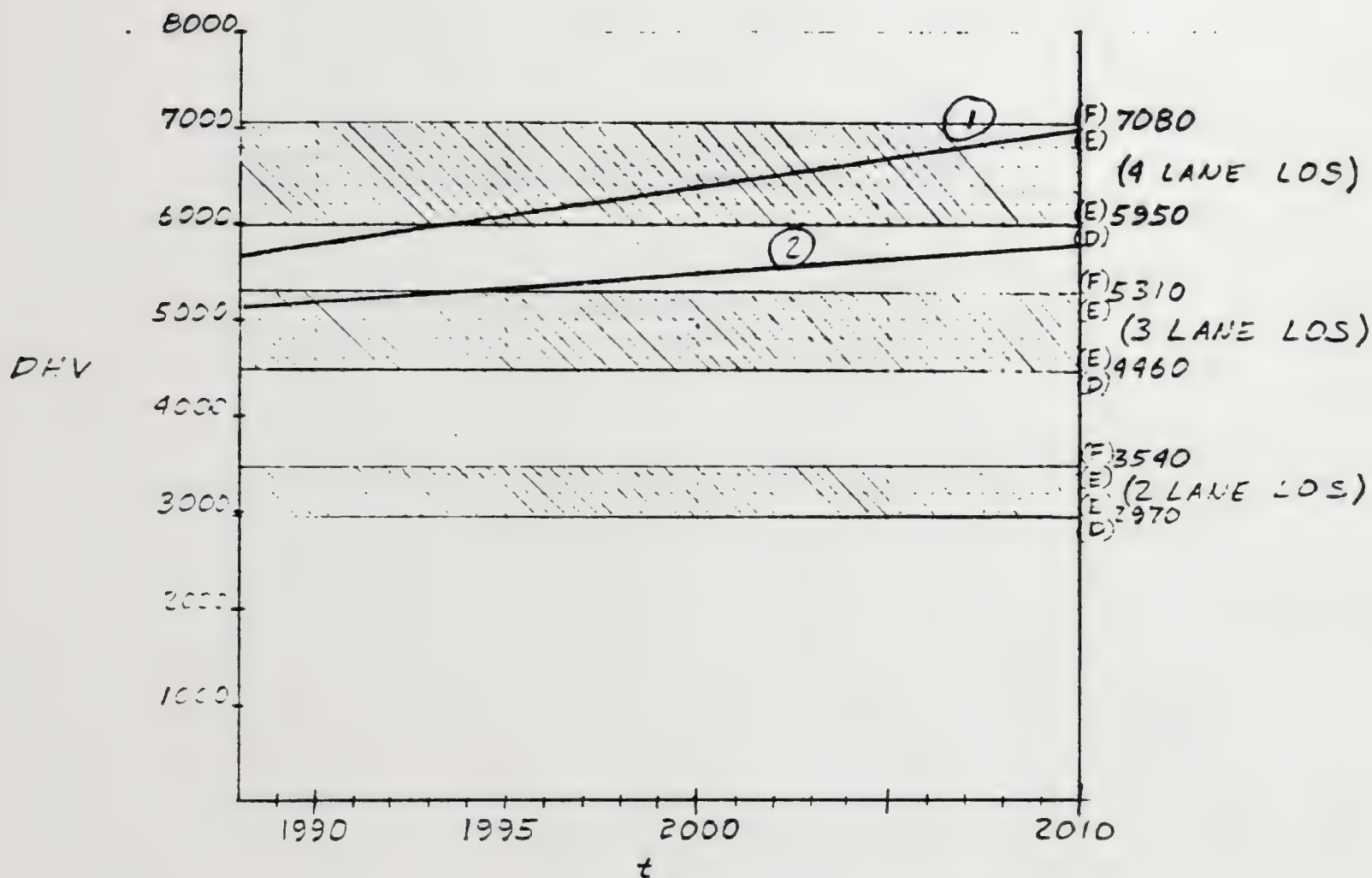






ENVIRODYNE  
ENGINEERS

Job No. 3328 Project: 56701  
Subject: YEAR OF NEED CHART FOR CAPACITY  
CIP-667 Sheet \_\_\_\_\_ of \_\_\_\_\_  
By: POM Date: 9-12-89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_



① NW - JHTA - Year 1993

② TCU - DEMETER Year 1994

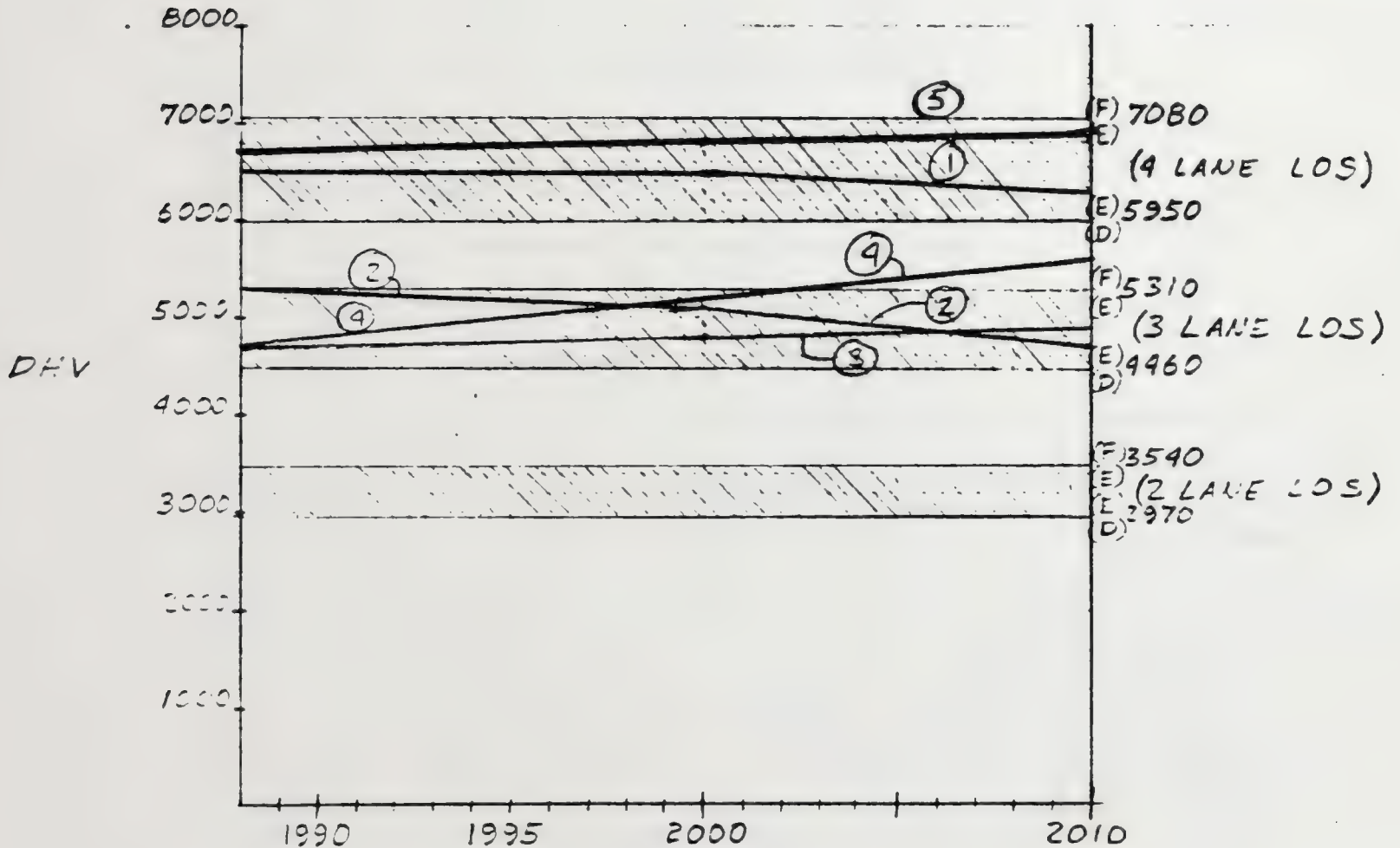






**ENVIRODYNE  
ENGINEERS**

Job No. 3328 Project: 56701  
 Subject: YEAR OF NEED CHART FOR CAPACITY  
CIP - NWE Sheet      of       
 By: PDM Date: 9-12-89 Ck:      Date:     



- ① L - 15' - A.H.  
 ② L - 15' - A.H.  
 ③ A.H. - I 290 (1653)  
 ④ I 290 - ROSELLE  
 ⑤ T - L.E.
- $t_{YOE} = 1988$   
 $Y_{OE} = 1988$   
 $Y_{OE} = 1988$   
 $Y_{OE} = 1988$   
 $Y_{OE} = 1988$
- $Y_{EF} = 2003$

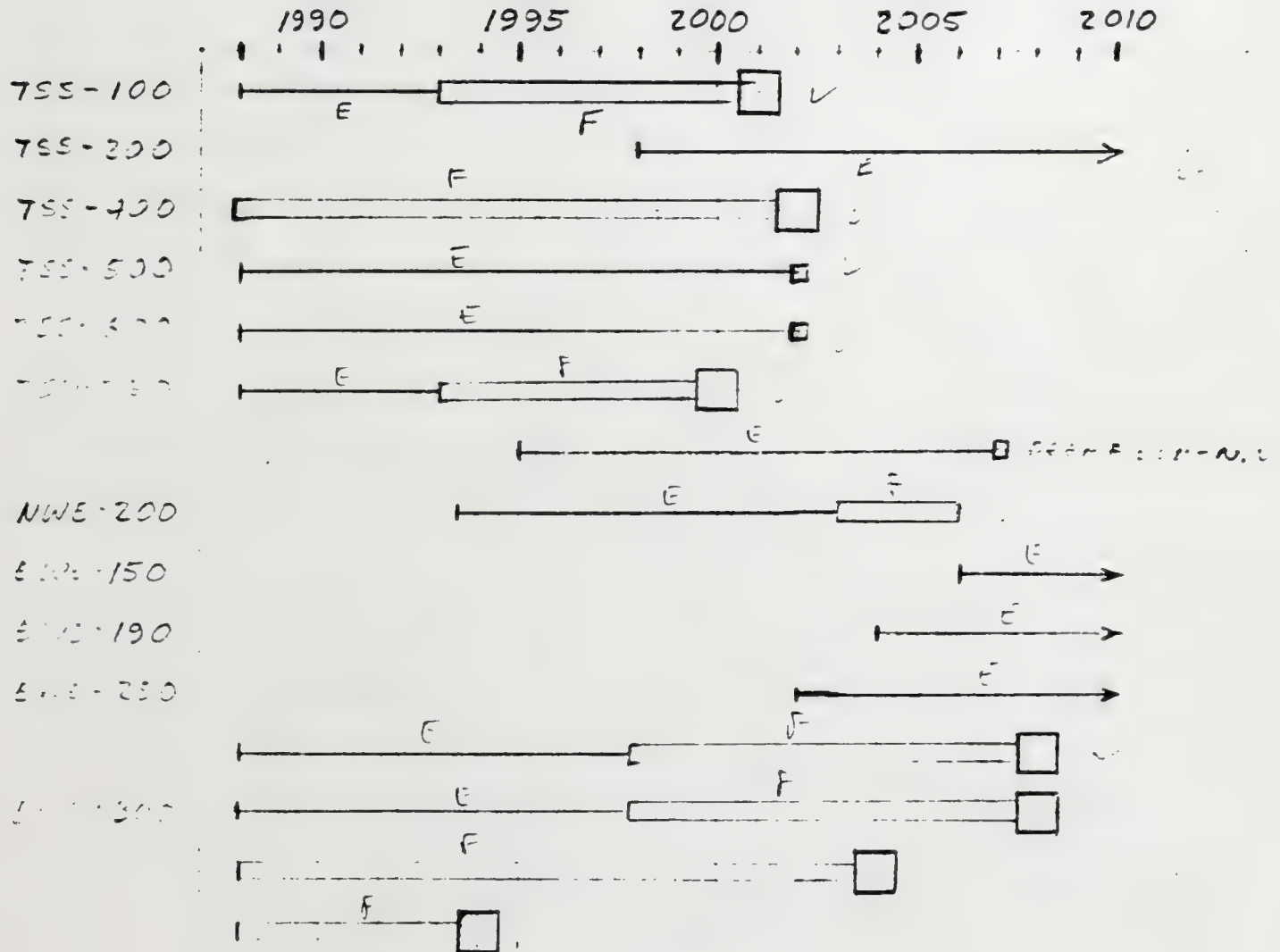




# ENVIRODYNE ENGINEERS

Job No. 3328 Project: 56701  
 Subject: YEAR OF NEED FOR CAPACITY  
 By: PCM Date: 9-13-89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_  
 Sheet \_\_\_\_\_ of \_\_\_\_\_


## FOR EXISTING CONDITION



- 1) EWE-200 (HIGHLAND AVE - RLS)
- 2) TSS-400
- 3) TSS-100
- 4) TSS-250
- 5) EWE-250 (ILSB-NS) AND REM EWE-300
- 6) TSS-150
- 7) TSS-300
- 8) EWE-300
- 9) TSS-200
- 10) EWE-250
- 11) EWE-190
- 12) EWE-150

YOE	YOE	YOE
1988	1988	1994
	1988	2002
	1993	2001
	1993	2000+
	1998	—
	2002	—
	2002	—
1994	2003	—
1998	—	—
2002	—	—
2004	—	—
2006	—	—













# ENVIRODYNE ENGINEERS

Job No. 3328 Project: 56701  
 Subject: YEAR OF NCLC - CIP  
 Sheet 2 of 2  
 By: PDM Date: 9-14-89 Ck: \_\_\_\_\_ Date: \_\_\_\_\_


## PARKING:

### CIP

- 1) CIP 666
- 2) TS to ELMHURST.
- 3) CIP 662
- 4) CIP 667
- 5) CIP 664-665
- 6) CIP 663 (ELMHURST)
- 7) CIP 661
- 8) I-290 - ROSELLE
- 9) CIP 665

### CIP & 10-YR PROJ.

- 1) CIP 666
- 2) NW: 75 - ELMHURST
- 3) CIP: 662
- 4)

## PROPOSED SEQUENCE:

- 1) SIMULTANEOUS OEP. 662, 663, 664 91-93
- 2) ... THEN 665, 666, NW (75-ELM) 94-95
- 3) 667 (DUE TO ... TIME) 96-97
- 4) 661 (I-290 ... TIME), NW I-290-FAIR (N/A 200 6-8 ... TIME) 97-98
- 5) ...



## 5.0 TRAFFIC ANALYSIS





WILBUR  
SMITH  
ASSOCIATES

ENGINEERS • ECONOMISTS • PLANNERS

135 COLLEGE STREET • P.O. BOX 9412 • NEW HAVEN, CT • 06534 • (203) 865-2191 • TELEX 650-269-1/54

**FAX TRANSMISSION**

CANON FAX-220

**OUR FAX # IS: 203-624-0484**

DATE: 8/7/89

TIME: 3:15 pm

**URGENT-PLEASE DELIVER IMMEDIATELY**

TO: Chris Devas

COMPANY/AGENCY: Envirodyne Engineers, Inc.

SUBJECT: \_\_\_\_\_

FROM: R.E. Abbott

PAGES (including this one): 11

If you do not receive all pages indicated, call 203-865-2191 and ask for the sender.

	312-648-
FAX#	4544
SEQ#	3381
JOB#	253901





WILBUR  
SMITH  
ASSOCIATES

ENGINEERS • ECONOMISTS • PLANNERS

135 COLLEGE STREET • P.O. BOX 9412 • NEW HAVEN, CT 06534 • (203) 865-2191 • FAX 203-624-0484 • TELEX 650-269-1754

August 5, 1989

Mr. Chris Dovas  
Envirodyne Engineers, Inc.  
168 North Clinton Street  
Chicago, IL 60606

Dear Chris:

Enclosed is the balance of the information you requested concerning year 2000 and 2010 LOS calculations from the 1989 Annual Report.

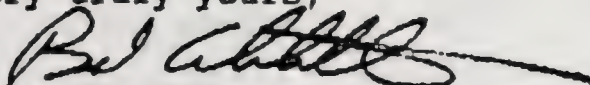
Tables A and B display estimated two-way ADTs, DHVs, truck percentages, number of lanes and LOS for each tollway segment as shown in our 1989 Annual Report for years 2000 and 2010. Note that certain mainline sections which contain greater directional capacity are listed by direction whereas in our Annual Report these were treated as one mainline section.

The lane capacities as shown in the annual report and in Tables A and B were calculated using a conservative planning approach. A nominal capacity of 1,770 vehicles per hour, per lane was used in calculating the corresponding v/c ratios and levels of service. This capacity corresponding to a truck percentage of 12 percent. Since the preparation of the annual report, we have estimated truck percentages by mainline segment based upon truck transactions at mainline plazas and these estimates are included in the accompanying tables.

The Systemwide Toll revenues which correlate to the year 2000 and 2010 traffic volumes referenced above are \$291,097,000 and \$328,069,000, respectively.

If you have any questions or desire additional information about the enclosed material, please do not hesitate to contact us.

Very truly yours,

  
Robert E. Abbott  
Principal Analyst

REA/mlc

cc: Melvin Sierakowski with attachment

ALBANY, NY • ALLIANCE, OH • BALTIMORE, MD • CAIRO, EGYPT • CHARLESTON, SC • COLUMBIA, SC • COLUMBUS, OH • FALLS CHURCH, VA • HONG KONG  
HOUSTON, TX • ISLIN, NJ • JACKSONVILLE, FL • KNOXVILLE, TN • KUALA LUMPUR, MALAYSIA • LEXINGTON, KY • LONDON, ENGLAND • LOS ANGELES, CA  
MIAMI, FL • MINNEAPOLIS, MN • NEEHAN, WI • NEW HAVEN, CT • ORLANDO, FL • PHOENIX, AZ • PITTSBURGH, PA • PORTSMOUTH, NH • PROVIDENCE, RI  
RALEIGH, NC • RICHMOND, VA • ROSELLE, IL • SAN FRANCISCO, CA • SAN JOSE, CA • SINGAPORE • TORONTO, CANADA • TULSA, OK • WASHINGTON, DC





Table A

TOLL ROAD and SEGMENT	YEAR 2000				
	TWO-WAY ADT	DMV	PERCENT TRUCKS	LANES	LOS
SOUTH TRI-STATE					
-----					
CALUMET EXPRESSWAY	116,200	5,600	17.0	3	E
HALSTED ST.	109,100	5,200	17.0	3	E
WOOD ST.	116,300	5,600	17.0	3	E
DIXIE HIGHWAY	122,400	5,900	17.0	3	F
INTERSTATE 80	95,500	4,600	17.0	3	D
159TH STREET	93,200	4,500	17.0	3	D
127TH STREET	98,600	4,700	16.5	3	D
95TH STREET	119,300	5,900	15.8	3	F
79TH STREET	104,600	5,200	14.0	3	E
INTERSTATE 55 (E.B.)	89,800	4,300	13.0	3	E
CENTRAL TRI-STATE					
-----					
JOLIET ROAD	134,500	6,100	12.2	3	F
OGDEN AVENUE	135,500	6,100	11.8	3	F
EAST-WEST CONNECTOR	105,200	4,700	11.8	3	D
CERMAK ROAD	112,100	4,700	13.9	3	E
ROOSEVELT ROAD	104,800	4,700	13.9	3	D
EAST-WEST TOLLWAY	115,200	6,700 NB	12.0	3	F
	115,200	6,800 SB	13.9	4	E
EISENHOWER EXPRESSWAY	113,900	5,000	9.3	3	E
ILLINOIS ROUTE 64	132,500	6,200	8.8	3	F
IRVING PARK ROAD	162,100	6,800	8.3	3	F
	162,100	7,200	8.8	4	F
KENNEDY EXPRESSWAY	130,600	5,900	8.3	3	F

Continued



Table A (Cont'd)

TOLL ROAD and SEGMENT	YEAR 2000				
	TWO-WAY ADT	DMV	PERCENT TRUCKS	LANES	LOS
NORTHWEST TOLLWAY					
	148,900	6,200 NB	8.3	4	D
	148,900	6,400 SB	7.9	3	F
TOUHY AVENUE					
	127,800	5,500	7.9	3	F
DENPSTER ROAD					
	92,100	4,400	8.0	3	D
NORTH TRI-STATE					
-----					
GOLF ROAD					
	109,100	5,300	8.5	3	E
WILLOW ROAD					
	94,900	4,300	9.0	3	D
EDENS SPUR					
	128,600	6,000	10.5	3	F
DEERFIELD ROAD					
	111,900	4,900	11.5	3	D
ILLINOIS ROUTE 22					
	110,200	5,000	11.8	3	E
ILLINOIS ROUTE 60					
	101,700	4,600	12.0	3	D
ILLINOIS ROUTE 176					
	92,400	4,200	12.5	3	D
ILLINOIS ROUTE 137					
	82,300	3,600	13.5	3	C
ILLINOIS ROUTE 120					
	64,300	2,800	14.0	3	C
ILLINOIS ROUTE 21					
	68,100	3,000	15.0	3	C
ILLINOIS ROUTE 132					
	51,100	2,200	17.0	3	B
ILLINOIS ROUTE 173					
	53,100	2,300	17.0	3	B
MILL CREEK ROAD					
	56,000	2,500	17.0	3	B
INTERSTATE 94					
NORTHWEST EAST					
-----					
KENNEDY EXPRESSWAY					
	107,800	5,200	5.2	3	C
TRI-STATE INTERCHANGE					
	156,300	6,300 EB	6.4	3	F
	156,300	7,400 WB	6.6	4	F
LEE STREET					
	139,000	6,500	6.6	3	F
ELMHURST ROAD					
	103,100	5,100	7.1	3	D
ARLINGTON HEIGHTS ROAD					
	95,000	4,800	7.0	3	D

Continued





Table A (Cont'd)

TOLL ROAD and SEGMENT	YEAR 2000				
	TWO-WAY ADT	DHV	PERCENT TRUCKS	LANES	LOS
INTERSTATE 290	104,500	3,200	7.9	3	E
ROSELLE ROAD	92,100	4,900	8.3	3	E
BARRINGTON ROAD	59,500	2,900	10.0	2	E
ILLINOIS ROUTE 59	69,200	3,300	11.0	2	F
ILLINOIS ROUTE 25	57,200	2,700	13.0	2	D
ILLINOIS ROUTE 31	41,300	2,200	17.0	2	C
RANDALL ROAD	38,600	2,100	17.5	2	C
NORTHWEST WEST .....					
ILLINOIS ROUTE 47	28,800	1,500	18.0	2	B
U.S. ROUTE 20	29,700	1,500	19.0	2	B
GENOA ROAD	26,300	1,400	20.0	2	B
U.S. ROUTE 20 (S. ROCKFORD)	34,300	1,700	25.5	2	C
U.S. ROUTE 20 (BUS.)	31,000	1,600	25.5	2	B
ROCKTON ROAD					
EAST-WEST EAST .....					
EISENHOWER EXPRESSWAY	59,500	3,200	5.5	3	C
TRI-STATE TOLLWAY	81,200	4,300	5.5	3	D
HAGER ROAD	82,800	4,400	5.5	3	D
EAST-WEST CONNECTOR	117,100	6,300	5.5	3	F
SPRING ROAD	117,000	6,400	5.5	3	F
ILLINOIS ROUTE 83	105,800	5,800	5.5	3	F
MIDWEST ROAD	106,900	5,800	6.0	3	F
HIGHLAND AVENUE	100,300	5,400	7.5	3	E
ILLINOIS ROUTE 53	80,800	4,300	8.0	3	D
NAPERVILLE ROAD	66,100	3,500	8.5	3	C
ILLINOIS ROUTE 59					

Continued



Table A (Cont'd)

TOLL ROAD and SEGMENT	YEAR 2000				
	TWO-WAY ADT	DHV	PERCENT TRUCKS	LANES	LOS
FARNBORTH AVENUE	48,800	2,600	9.0	2	D
ILLINOIS ROUTE 31	41,800	2,200	9.3	2	D
ILLINOIS ROUTE 56	36,200	1,800	9.3	2	C
	33,900	1,600	7.3	2	C
EAST-WEST WEST					
ILLINOIS ROUTE 47	16,300	800	7.0	2	A
DEKALB EAST	10,000	400	6.5	2	A
DEKALB WEST	8,400	400	6.1	2	A
ROCHELLE, U.S. RTE. 51	11,500	500	21.7	2	A
ILLINOIS ROUTE 251	9,000	400	21.7	2	A
ILLINOIS ROUTE 26	8,700	400	21.7	2	A
U.S. ROUTE 30					





Table A (Cont'd)

TOLL ROAD and SEGMENT	YEAR 2000				
	TWO-WAY ADT	DHV	PERCENT TRUCKS	LANES	LOS
FARNSWORTH AVENUE	48,800	2,600	9.0	2	D
ILLINOIS ROUTE 31	41,800	2,200	9.3	2	D
ILLINOIS ROUTE 36	34,200	1,800	9.3	2	C
	33,900	1,600	7.3	2	C
EAST-WEST WEST					
ILLINOIS ROUTE 47	16,300	800	7.0	2	A
DEKALB EAST	10,000	400	6.5	2	A
DEKALB WEST	8,400	400	6.1	2	A
ROCHELLE, U.S. RTE. 51	11,500	500	21.7	2	A
ILLINOIS ROUTE 231	9,000	400	21.7	2	A
ILLINOIS ROUTE 26	8,700	400	21.7	2	A
U.S. ROUTE 30					



Table B

TOLL ROAD and SEGMENT	YEAR 2010				
	TWO-WAY ADT	DHV	PERCENT TRUCKS	LANES	LOS
SOUTH TRI-STATE					
-----					
CALUMET EXPRESSWAY	129,800	6,200	17.0	3	F
HALSTED ST.	120,600	5,800	17.0	3	F
WOOD ST.	131,700	6,300	17.0	3	F
DIXIE HIGHWAY	140,500	6,700	17.0	3	F
INTERSTATE 80	109,000	5,200	17.0	3	E
159TH STREET	107,800	5,200	17.0	3	E
127TH STREET	113,600	5,500	16.5	3	F
95TH STREET	130,400	6,400	15.8	3	F
79TH STREET	111,600	5,600	14.0	3	F
INTERSTATE 55 (E.B.)	86,800	4,200	13.0	3	F
CENTRAL TRI-STATE					
-----					
JOLIET ROAD	135,500	6,100	12.2	3	F
ODDEN AVENUE	137,000	6,200	11.8	3	F
EAST-WEST CONNECTOR	105,000	4,700	11.8	3	D
CERMAK ROAD	113,000	4,700	13.9	3	E
ROOSEVELT ROAD	104,000	4,700	13.9	3	D
EAST-WEST TOLLWAY	100,900	6,300 MB	12.0	3	E
	100,900	6,400 SB	13.9	4	D
EISENHOWER EXPRESSWAY	123,700	5,400	9.3	3	E
ILLINOIS ROUTE 64	143,400	6,700	8.8	3	F
IRVING PARK ROAD	179,800	7,500	8.3	3	F
	179,800	8,000	8.8	4	F
KENNEDY EXPRESSWAY	123,700	5,500	8.3	3	F

Continued





Table B (Cont'd)

TOLL ROAD and SEGMENT	YEAR 2010				
	TWO-WAY ADT	DKV	PERCENT TRUCKS	LANES	LOS
NORTHWEST TOLLWAY					
	161,900	6,700 NB	8.3	4	E
	161,900	7,000 SB	7.9	3	F
TOUHY AVENUE	136,700	5,800	7.9	3	F
DENPSTER ROAD	100,700	4,800	8.0	3	D
NORTH TRI-STATE					
DOLF ROAD					
	122,200	5,900	8.5	3	F
WILLOW ROAD	117,000	5,300	9.0	3	E
EDENS SPUR	149,200	7,000	10.5	3	F
DEERFIELD ROAD	132,000	5,800	11.5	3	F
ILLINOIS ROUTE 22	132,600	6,100	11.8	3	F
ILLINOIS ROUTE 60	126,000	5,800	12.0	3	F
ILLINOIS ROUTE 176	115,000	5,200	12.5	3	F
ILLINOIS ROUTE 137	102,000	4,500	13.5	3	D
ILLINOIS ROUTE 120	75,900	3,300	14.0	3	C
ILLINOIS ROUTE 21	81,200	3,600	15.0	3	C
ILLINOIS ROUTE 132	62,700	2,800	17.0	3	C
ILLINOIS ROUTE 173	72,500	3,200	17.0	3	C
MILL CREEK ROAD	82,200	3,600	17.0	3	C
INTERSTATE 94					
NORTHWEST EAST					
KENNEDY EXPRESSWAY					
	102,800	5,000	5.2	3	C
TRI-STATE INTERCHANGE					
	156,900	6,300 EB	6.4	3	F
	156,900	7,300 WB	6.6	4	F
LEE STREET	133,700	6,300	6.6	3	F
ELMHURST ROAD	96,000	4,700	7.1	3	D
ARLINGTON HEIGHTS ROAD	95,100	4,900	7.0	3	D

Continued



Table B (Cont'd)

YEAR 2010

TOLL ROAD and SEGMENT		TWO-WAY ADT	DHV	PERCENT TRUCKS	LANES	LOS
INTERSTATE 290						
NWE-200	ROSELLE ROAD	111,500	5,600	7.9	3	F
	BARRINGTON ROAD	103,500	5,500	8.3	3	F
	ILLINOIS ROUTE 59	68,400	3,300	10.0	2	F
	ILLINOIS ROUTE 25	82,200	3,900	11.0	2	F
	ILLINOIS ROUTE 31	63,400	2,900	13.0	2	E
NWW-100	RANDALL ROAD	49,900	2,700	17.0	2	D
		44,000	2,400	17.5	2	D
NORTHWEST WEST -----						
NWW-200	ILLINOIS ROUTE 47					
	U.S. ROUTE 20	30,600	1,600	18.0	2	B
	GENDA ROAD	34,800	1,800	19.0	2	C
NWW-300	U.S. ROUTE 20 (S. ROCKFORD)	30,300	1,600	20.0	2	C
	U.S. ROUTE 20 (BUS.)	40,200	2,000	25.5	2	C
	ROCKTON ROAD	37,200	1,900	25.5	2	C
EAST-WEST EAST -----						
EWE-300	EISENHOWER EXPRESSWAY					
	TRI-STATE TOLLWAY	77,200	4,100	5.5	3	D
	HAGER ROAD	89,000	4,700	5.5	3	D
	EAST-WEST CONNECTOR	90,700	4,800	5.5	3	D
	SPRING ROAD	127,500	6,900	5.5	3	F
	ILLINOIS ROUTE 83	127,500	7,000	5.5	3	F
	HIDWEST ROAD	113,300	6,200	5.5	3	F
	HIGHLAND AVENUE	115,400	6,300	6.0	3	F
	ILLINOIS ROUTE 53	113,700	6,100	7.5	3	F
	NAPERVILLE ROAD	94,900	5,000	8.0	3	E
EWE-250						
EWE-210	ILLINOIS ROUTE 59	81,100	4,300	8.5	3	D

Continued





Table B (Cont'd)

YEAR 2010

EW-210

EW-100



TOLL ROAD and SEGMENT		YEAR 2010			
		TWO-WAY ADT	DHV	PERCENT TRUCKS	LANES LOS
ILLINOIS ROUTE 59		66,300	3,500	9.0	2 F
FARNSWORTH AVENUE		63,200	3,400	9.3	2 F
ILLINOIS ROUTE 31		60,000	3,000	9.3	2 E
ILLINOIS ROUTE 56		55,100	2,600	7.3	2 D
EAST-WEST WEST					
.....					
ILLINOIS ROUTE 47		16,300	800	7.0	2 A
DEKALB EAST		10,000	400	6.5	2 A
DEKALB WEST		8,400	400	6.1	2 A
ROCHELLE, U.S. RTE. 51		11,500	500	21.7	2 A
ILLINOIS ROUTE 251		9,000	400	21.7	2 A
ILLINOIS ROUTE 26		8,700	400	21.7	2 A



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**FAX TRANSMISSION**

CANON FAX-220

**OUR FAX # IS: 203-824-0484**

**DATE:** 9/26/89

**TIME:** 8 pm

**URGENT-PLEASE DELIVER IMMEDIATELY**

**TO:** Chris Dova  
**COMPANY/AGENCY:** EEI  
**SUBJECT:** Modified Widening - Estimated 2010 Traffic  
**FROM:** Ed Regan  
**PAGES (including this one):** 10

If you do not receive all pages indicated, call 203-865-2191 and ask for the sender.

FAX# 3126484544  
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JOB# 253920-M









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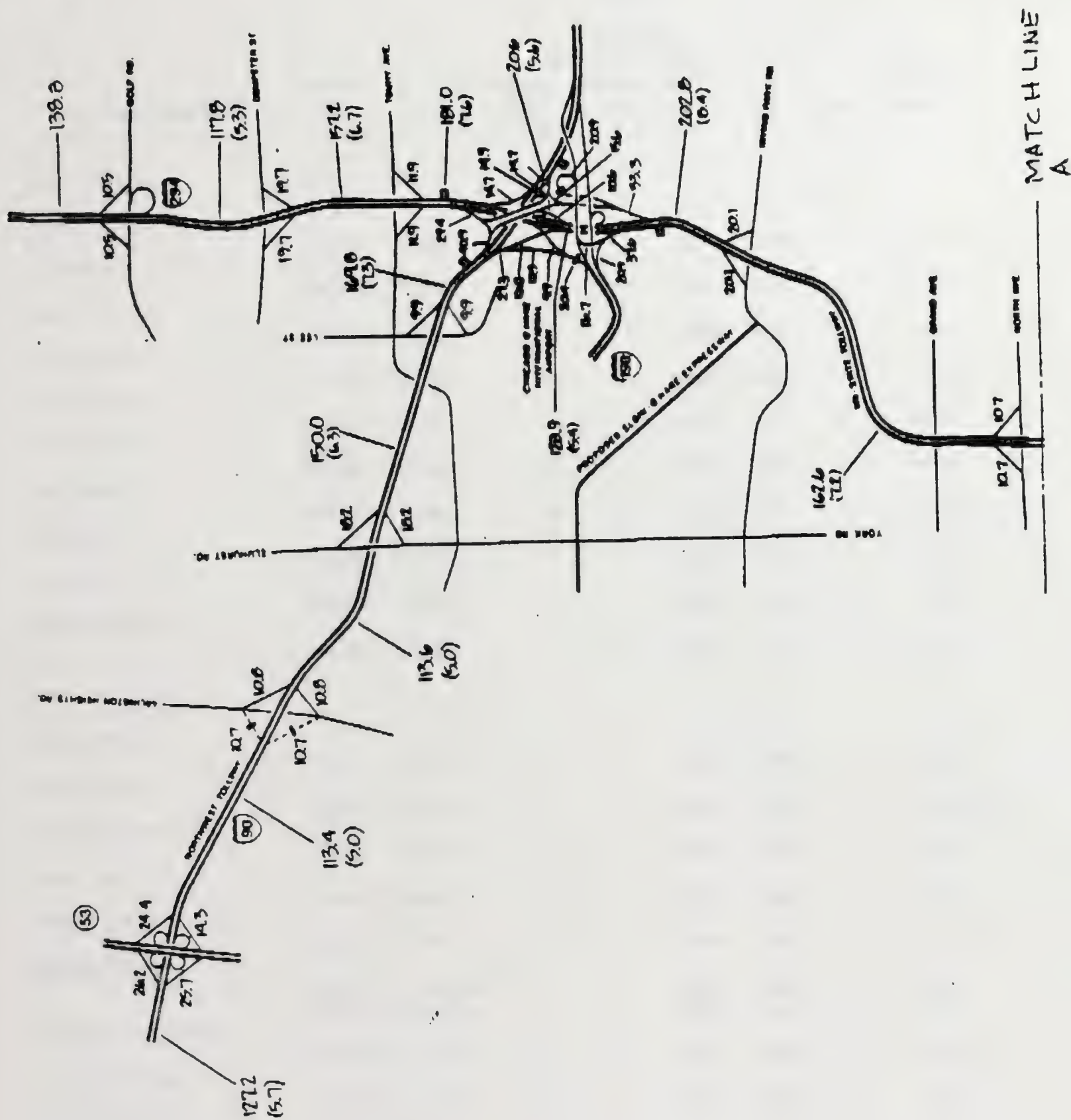






Table A

YEAR 2010

TOLL ROAD and SEGMENT	TWO-WAY ADT	DHV	EXISTING LANES	PROPOSED LANES	DIR. CAP.	V/C	LOS	PERCENT TRUCKS
SOUTH TRI-STATE								
CALUMET EXPRESSWAY	143,000	6,300	3	4	6,840	0.92	D	17.0
HALSTED ST.	138,000	6,100	3	4	6,840	0.89	D	17.0
WOOD ST.	143,200	6,300	3	4	6,840	0.92	D	17.0
DIXIE HIGHWAY	148,400	6,500	3	4	6,840	0.95	E	17.0
INTERSTATE 80	119,800	5,300	3	4	6,840	0.77	D	17.0
159TH STREET	121,400	5,300	3	3	5,130	1.03	F	17.0
127TH STREET	134,000	5,900	3	3	5,150	1.15	F	16.5★
95TH STREET	150,800	6,800	3	4	6,910	0.98	E	15.8
79TH STREET	140,800	6,400	3	4	7,020	0.91	D	14.0
INTERSTATE 55 (E.B.)	120,400	5,400	3	3	5,310	1.02	F	13.0
CENTRAL TRI-STATE								
JOLIET ROAD	181,400	7,600	3	4	7,130	1.07	F	12.2
OGDEN AVENUE	185,000	7,800	3	4	7,160	1.09	F	11.8★
EAST-WEST CONNECTOR	139,600	6,000	3	4	7,160	0.84	D	11.8
CERMAK ROAD	148,600	6,200	3	4	7,020	0.88	D	13.9
ROOSEVELT ROAD	137,600	5,900	3	4	7,020	0.84	D	13.9
EAST-WEST TOLLWAY	127,500	5,500 NB	3	5	8,930	0.62	C	12.0
	127,500	5,500 SB	4	5	8,780	0.63	C	13.9
EISENHOWER EXPRESSWAY	142,400	6,200	3	4	7,320	0.85	D	9.3
ILLINOIS ROUTE 64	162,600	7,200	3	4	7,350	0.98	E	8.8
IRVING PARK ROAD	202,800	8,400	3	5	9,230	0.91	D	8.3
	202,800	8,400	4	5	9,190	0.91	D	8.8



Table A

YEAR 2010

TOLL ROAD and SEGMENT	TWO-WAY ADT	DMV	EXISTING LANES	PROPOSED LANES	DIR. CAP.	V/C	LOS	PERCENT TRUCKS
KENNEDY EXPRESSWAY	128,900	5,400	3	4	7,390	0.73	C	8.3
NORTHWEST TOLLWAY	181,000	7,300 NB	4	5	9,230	0.79	D	8.3
	181,000	7,600 SB	3	5	9,270	0.82	D	7.9
TOUHY AVENUE	157,200	6,700	3	4	7,410	0.90	D	7.9
DENPSTER ROAD	117,800	5,300	3	3	5,560	0.95	E	8.0
NORTH TRI-STATE								
DOLF ROAD	138,800	6,400	3	4	7,370	0.87	D	8.3
WILLOW ROAD	131,800	5,900	3	3	5,500	1.07	F	9.0
EDENS SPUR	167,200	7,200	3	4	7,240	0.99	E	10.5
DEERFIELD ROAD	143,600	6,100	3	4	7,170	0.85	D	11.5
ILLINOIS ROUTE 22	138,800	6,300	3	4	7,160	0.88	D	11.8
ILLINOIS ROUTE 60	133,000	6,100	3	3	5,360	1.14	F	12.0
ILLINOIS ROUTE 176	117,600	5,400	3	3	5,330	1.01	F	12.5
ILLINOIS ROUTE 137	104,800	4,600	3	3	5,290	0.87	D	13.5
ILLINOIS ROUTE 120	80,200	3,500	3	3	5,260	0.67	C	14.0
ILLINOIS ROUTE 21	85,800	3,800	3	3	5,220	0.73	C	15.0
ILLINOIS ROUTE 132	60,600	2,700	3	3	5,130	0.53	B	17.0
ILLINOIS ROUTE 173	54,000	2,400	3	3	5,130	0.47	B	17.0
MILL CREEK ROAD	54,400	2,400	3	3	5,130	0.47	B	17.0
INTERSTATE 94								
NORTHWEST EAST								
KENNEDY EXPRESSWAY	120,600	5,600	3	3	5,700	0.98	E	5.2
TRI-STATE INTERCHANGE	169,800	6,800 EB	3	5	9,400	0.72	C	6.4
	169,800	7,300 WB	4	5	9,380	0.78	D	6.6
LEE STREET	150,000	6,300	3	4	7,500	0.84	D	6.6
ELMHURST ROAD	113,600	5,000	3	4	7,470	0.67	C	7.1
ARLINGTON HEIGHTS ROAD								





Table A

YEAR 2010

TOLL ROAD and SEGMENT	TWO-WAY ADT	DHV	EXISTING LANES	PROPOSED LANES	DIR. CAP.	V/C	LOS	PERCENT TRUCKS
INTERSTATE 290	113,400	5,000	3	4	7,480	0.67	C	7.0
ROSELLE ROAD	127,200	5,700	3	4	7,410	0.77	C	7.9
BARRINGTON ROAD	105,400	4,900	3	4	7,390	0.66	C	8.3
ILLINOIS ROUTE 59	74,200	3,300	2	3	8,450	0.61	C	10.0
ILLINOIS ROUTE 25	90,800	4,000	2	3	5,410	0.74	C	11.0
ILLINOIS ROUTE 31	77,600	3,400	2	2	3,540	0.96	E	13.0
RANDALL ROAD	60,400	2,800	2	2	3,420	0.82	D	17.0
	53,000	2,800	2	2	3,400	0.82	D	17.5
NORTHWEST WEST -----								
ILLINOIS ROUTE 47	44,600	2,100	2	2	3,390	0.62	C	18.0
U.S. ROUTE 20	50,400	2,600	2	2	3,360	0.71	C	19.0
GENOA ROAD	45,600	2,200	2	2	3,330	0.66	C	20.0
U.S. ROUTE 20 (S. ROCKFORD)	58,200	2,800	2	2	3,190	0.88	D	25.5
U.S. ROUTE 20 (BUS.)	51,200	2,500	2	2	3,190	0.78	D	25.5
EAST RIVERSIDE BLVD.	47,800	2,300	2	2	3,190	0.72	C	25.5
ROCKTON ROAD								
EAST-WEST EAST -----								
EISENHOWER EXPRESSWAY	75,300	3,600	3	3	5,690	0.63	C	5.5
TRI-STATE TOLLWAY	90,900	4,300	3	3	5,690	0.76	C	5.5
HAGER ROAD	94,700	4,500	3	3	5,690	0.79	D	5.5
EAST-WEST CONNECTOR	145,000	6,900	3	4	7,580	0.91	D	5.5
SPRING ROAD	149,000	7,100	3	4	7,580	0.94	E	5.5
ILLINOIS ROUTE 83	132,600	6,300	3	4	7,580	0.83	D	5.5
MIDWEST ROAD	133,400	6,700	3	4	7,550	0.89	D	6.0
HIGHLAND AVENUE	137,600	6,800	3	4	7,550	0.90	D	6.0
NORTH-SOUTH TOLLWAY	129,400	6,400	3	4	7,440	0.84	D	7.5
ILLINOIS ROUTE 53								



Table A

YEAR 2010

TOLL ROAD and SEGMENT	TWO-WAY ADT	DHV	EXISTING LANES	PROPOSED LANES	DIR. CAP.	V/C	LOS	PERCENT TRUCKS
WAPERVILLE ROAD	110,600	5,500	3	3	3,560	0.99	E	8.0
ILLINOIS ROUTE 59	94,200	4,700	3	3	3,530	0.85	D	8.5
FARNSWORTH AVENUE	67,400	3,300	2	2	3,470	0.90	D	9.0
ILLINOIS ROUTE 31	57,200	2,700	2	2	3,660	0.74	C	9.3
ORCHARD ROAD	43,600	2,000	2	2	3,660	0.55	C	9.3
ILLINOIS ROUTE 56	38,800	1,800	2	2	4,000	0.43	B	
	21,800	1,000	2	2	3,730	0.27	A	7.3
EAST-WEST WEST								
ILLINOIS ROUTE 47	27,400	1,300	2	2	3,740	0.35	A	7.0
DEKALB EAST	19,600	900	2	2	3,760	0.24	A	6.5
DEKALB WEST	17,000	800	2	2	3,770	0.21	A	6.1
ROCHELLE, U.S. RTE. 51	18,600	900	2	2	3,290	0.27	A	21.7
ILLINOIS ROUTE 251	17,800	900	2	2	3,290	0.27	A	21.7
ILLINOIS ROUTE 26	18,600	900	2	2	3,290	0.27	A	21.7
U.S. ROUTE 30								





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September 28, 1989

Mr. Melvin R. Sierakowski  
Traffic and Operations Engineer  
Illinois State Toll Highway Authority  
2001 West 22nd Street  
Oak Brook, IL 60521

Re: Toll Plaza Requirements

Dear Mel:

As requested, we are pleased to submit herewith estimated toll plaza requirements for the following mainline toll plazas:

- Plaza 14 (new);
- Plaza 17 (Devon Avenue);
- Plaza 19 (River Road);
- Plaza 25 (Deerfield);
- Plaza 29 (Touhy Avenue);
- Plaza 33 (Irving Park Road);
- Plaza 35 (Cermak Road);
- Plaza 39 (83rd Street);
- Plaza 41 (163rd Street); and
- Plaza 51 (York Road).

As requested, we have estimated toll plaza requirements by manual versus automatic lane at five year increments between 1995 and 2010. These estimates have been prepared under two conditions for all plazas, with and without the proposed Tollway widening program. The widening program assumed is the modified plan which was conveyed to WSA in August, 1989. This includes widening with the core area of the Tollway system, as well as some segments north and south outside the core area which had not been previously evaluated in 1988.

In addition, for Plazas 17 and 33, the impact of constructing the proposed O'Hare Bypass is also recognized.

We looked at the possibility of reversibility of toll lanes and, in most cases, directional splits are not sufficient to make this worthwhile. Directional imbalances are expected to decrease in the future as overall levels of congestion grow. Therefore, no reversibility is assumed.



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Mr. Melvin R. Sierakowski  
September 28, 1989  
Page Two

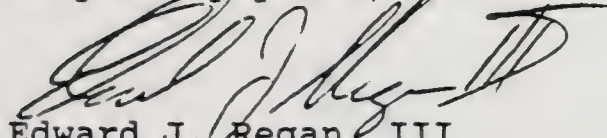
The lane requirements were developed using our dynamic capacity model, which recognizes variable transaction times for commercial vehicles, passenger cars with exact change and passenger cars requiring change, etc. In general, it was assumed that 60 percent of passenger car motorists would tender the exact change. The proportion of trucks in the traffic stream was based on actual traffic data provided by the Authority.

The design hour volumes used were those developed as part of the modified widening program analysis and provided in a separate Technical Memorandum. Obviously, under the widening scenario toll lane requirements would be significantly greater. Without widening, while there will continue to be some growth in average daily traffic, there is relatively little toll plaza widening needed after the year 2000 since most plaza approaches would be at capacity.

We would be pleased to answer any questions you may have. By copy of this letter, we are providing copies of these findings directly to Chris Dovas at Envirodyne.

Thanks and best regards.

Very truly yours,



Edward J. Regan III  
Vice President

EJR/kac  
Enclosures

cc: Mr. Chris Dovas - EEI







Table 1  
TOLL PLAZA CONFIGURATIONS  
Plaza 14

	EASTBOUND			WESTBOUND			BOTH DIRECTIONS
	Manual	Automatic	Total	Manual	Automatic	Total	
Existing	0	0	0	0	0	0	0
Without Widening							
1995	6	3	9	6	3	9	18
2000	6	4	10	6	4	10	20
2005	7	4	11	7	4	11	22
2010	7	5	12	7	5	12	24
With Widening							
1995	7	4	11	7	4	11	22
2000	7	5	12	7	5	12	24
2005	7	5	12	7	5	12	24
2010	8	5	13	8	5	13	26

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September 28, 1989



Table 2  
TOLL PLAZA CONFIGURATIONS  
Plaza 17

	WESTBOUND			CHANGE FROM EXISTING		
	Manual	Automatic	Total	Manual	Automatic	Total
Existing	7	7	14	-	-	-
Without Widening						
1995	9	7	16	2	0	2
2000	9	7	16	2	0	2
2005	9	7	16	2	0	2
2010	9	7	16	2	0	2
With Widening						
1995	9	7	16	2	0	2
2000	9	7	16	2	0	2
2005	9	7	16	2	0	2
2010	9	7	16	2	0	2
With Widening and O'Hare Bypass						
1995	8	5	13	1	-2	-1
2000	8	5	13	1	-2	-1
2005	8	6	14	1	-1	0
2010	8	6	14	1	-1	0





Table 3  
TOLL PLAZA CONFIGURATIONS  
Plaza 19

	EASTBOUND			CHANGE FROM EXISTING		
	Manual	Automatic	Total	Manual	Automatic	Total
Existing	5	6	11	-	-	-
Without Widening						
1995	6	5	11	1	-1	0
2000	6	5	11	1	-1	0
2005	6	5	11	1	-1	0
2010	6	5	11	1	-1	0
With Widening						
1995	6	5	11	1	-1	0
2000	6	5	11	1	-1	0
2005	7	5	12	2	-1	1
2010	7	5	12	2	-1	1

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Table 4  
TOLL PLAZA CONFIGURATIONS  
Plaza 25

	NORTHBOUND			SOUTHBOUND			BOTH DIRECTIONS	CHANGE FROM EXISTING		
	Manual	Automatic	Total	Manual	Automatic	Total		Manual	Automatic	Total
Existing	5	5	10	5	5	10	20	-	-	-
Without Widening										
1995	8	5	13	8	5	13	26	6	0	6
2000	8	5	13	8	5	13	26	6	0	6
2005	8	5	13	8	5	13	26	6	0	6
2010	8	5	13	8	5	13	26	6	0	6
With Widening										
1995	8	5	13	8	5	13	26	6	0	6
2000	9	5	14	9	5	14	28	8	0	8
2005	10	5	15	10	5	15	30	10	0	10
2010	10	6	16	10	6	16	32	10	2	12

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September 28, 1989





Table 5  
TOLL PLAZA CONFIGURATIONS  
Plaza 29

	NORTHBOUND			CHANGE FROM EXISTING		
	Manual	Automatic	Total	Manual	Automatic	Total
Existing	6	7	13	-	-	-
Without Widening						
1995	8	6	14	2	-1	1
2000	8	6	14	2	-1	1
2005	8	6	14	2	-1	1
2010	9	6	15	3	-1	2
With Widening						
1995	8	6	14	2	-1	1
2000	9	6	15	3	-1	2
2005	10	6	16	4	-1	3
2010	10	6	16	4	-1	3

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Table 6  
TOLL PLAZA CONFIGURATIONS  
Plaza 33

	SOUTHBOUND			CHANGE FROM EXISTING		
	Manual	Automatic	Total	Manual	Automatic	Total
Existing	7	6	13	-	-	-
Without Widening						
1995	9	6	15	2	0	2
2000	10	6	16	3	0	3
2005	10	6	16	3	0	3
2010	10	6	16	3	0	3
With Widening						
1995	9	6	15	2	0	2
2000	11	6	17	4	0	4
2005	11	7	18	4	1	5
2010	11	7	18	4	1	5
With Widening and O'Hare Bypass						
1995	8	4	12	1	-2	-1
2000	8	5	13	1	-1	0
2005	9	5	14	2	-1	1
2010	9	6	15	2	0	2





Table 7  
TOLL PLAZA CONFIGURATIONS  
Plaza 35

	NORTHBOUND			SOUTHBOUND			BOTH DIRECTIONS	CHANGE FROM EXISTING		
	Manual	Automatic	Total	Manual	Automatic	Total		Manual	Automatic	Total
Existing	6	4	10	6	4	10	20	-	-	-
Without Widening										
1995	9	4	13	9	4	13	26	6	0	6
2000	9	4	13	9	4	13	26	6	0	6
2005	9	4	13	9	4	13	26	6	0	6
2010	9	4	13	9	4	13	26	6	0	6
With Widening										
1995	9	4	13	9	4	13	26	6	0	6
2000	9	4	13	9	4	13	26	6	0	6
2005	9	5	14	9	5	14	28	6	2	8
2010	9	5	14	9	5	14	28	6	2	8



Table 8  
TOLL PLAZA CONFIGURATIONS  
Plaza 39

	NORTHBOUND		SOUTHBOUND		BOTH DIRECTIONS	CHANGE FROM EXISTING	
	Manual	Automatic	Manual	Automatic		Manual	Automatic
	Total	Total	Total	Total		Total	Total
Existing	5	5	5	5	20	-	-
Without Widening							
1995	7	5	7	5	24	4	4
2000	8	5	8	5	26	6	6
2005	8	5	8	5	26	6	6
2010	8	5	8	5	26	6	6
With Widening							
1995	9	5	9	5	28	8	8
2000	10	5	10	5	30	10	10
2005	10	5	10	5	30	10	10
2010	11	5	11	5	32	12	12

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Table 9  
TOLL PLAZA CONFIGURATIONS  
Plaza #1

	NORTHBOUND			SOUTHBOUND			BOTH DIRECTIONS	CHANGE FROM EXISTING		
	Manual	Automatic	Total	Manual	Automatic	Total		Manual	Automatic	Total
Existing	4	4	8	4	4	8	16	-	-	-
Without Widening										
1995	7	4	11	7	4	11	22	6	0	6
2000	8	4	12	8	4	12	24	8	0	8
2005	8	4	12	8	4	12	24	8	0	8
2010	9	4	13	9	4	13	26	10	0	10
With Widening										
1995	7	4	11	7	4	11	22	6	0	6
2000	8	4	12	8	4	12	24	8	0	8
2005	9	4	13	9	4	13	26	10	0	10
2010	9	5	14	9	5	14	28	10	2	12

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Table 10  
TOLL PLAZA CONFIGURATIONS  
Plaza 51

	EASTBOUND			WESTBOUND			BOTH DIRECTIONS	CHANGE FROM EXISTING		
	Manual	Automatic	Total	Manual	Automatic	Total		Manual	Automatic	Total
Existing	4	5	9	5	6	11	20	-	-	-
Without Widening										
1995	7	5	12	7	5	12	24	5	-1	4
2000	7	5	12	7	5	12	24	5	-1	4
2005	7	5	12	7	5	12	24	5	-1	4
2010	7	5	12	7	5	12	24	5	-1	4
With Widening										
1995	8	5	13	8	5	13	26	7	-1	6
2000	8	6	14	8	6	14	28	7	1	8
2005	8	6	14	8	6	14	28	7	1	8
2010	9	6	15	9	6	15	30	9	1	10

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September 28, 1989





Table A  
MODIFIED WIDENING PROGRAM  
Scenario 1  
With O'Hare Bypass

TOLL ROAD and SEGMENT	YEAR 2000								YEAR 2010							
	TWO-WAY ADT	DHW	EXISTING LANES	PROPOSED LANES	DIR. CAP.	V/C	LOS	PERCENT TRUCKS	TWO-WAY ADT	DHW	EXISTING LANES	PROPOSED LANES	DIR. CAP.	V/C	LOS	PERCENT TRUCKS
<b>SOUTH TRI-STATE</b>																
<b>CAUMMET EXPRESSWAY</b>																
HALSTED ST.	123,600	5,700	3	4	6,840	0.83	D	17.0	145,000	6,400	3	4	6,840	0.94	D	17.0
WOOD ST.	118,400	5,500	3	4	6,840	0.80	D	17.0	140,000	6,200	3	4	6,840	0.91	D	17.0
DIXIE HIGHWAY	121,800	5,700	3	4	6,840	0.83	D	17.0	145,000	6,400	3	4	6,840	0.94	D	17.0
INTERSTATE 80	125,200	5,800	3	4	6,840	0.85	D	17.0	150,400	6,600	3	4	6,840	0.96	E	17.0
159TH STREET	99,600	4,600	3	4	6,840	0.67	C	17.0	121,800	5,400	3	4	6,840	0.79	D	17.0
127TH STREET	101,800	4,700	3	3	5,130	0.92	D	17.0	123,400	5,400	3	3	5,130	1.05	F	17.0
95TH STREET	108,800	5,000	3	3	5,150	0.97	E	16.5	136,000	6,000	3	3	5,150	1.17	F	16.5
79TH STREET	130,400	6,200	3	4	6,910	0.90	D	15.8	152,800	6,900	3	4	6,910	1.00	E	15.8
INTERSTATE 55 (E.B.)	119,800	5,700	3	4	7,020	0.81	D	14.0	142,800	6,400	3	4	7,020	0.91	D	14.0
	103,000	4,900	3	3	5,310	0.92	D	13.0	122,400	5,500	3	3	5,310	1.04	F	13.0
<b>CENTRAL TRI-STATE</b>																
<b>JULIET ROAD</b>																
ODDEN AVENUE	161,300	7,200	3	4	7,130	1.01	E	12.2	185,600	7,800	3	4	7,130	1.09	F	12.2
EAST-WEST CONNECTOR	163,900	7,300	3	4	7,160	1.02	E	11.8	190,200	8,000	3	4	7,160	1.12	F	11.8
CEHAWK ROAD	127,700	5,800	3	4	7,160	0.81	D	11.8	145,400	6,200	3	4	7,160	0.87	D	11.8
ROOSEVELT ROAD	134,700	5,900	3	4	7,020	0.84	D	13.9	154,400	6,400	3	4	7,020	0.91	D	13.9
EAST-WEST TOLLWAY	126,500	5,700	3	4	7,020	0.81	D	13.9	143,400	6,100	3	4	7,020	0.87	D	13.9
EISENHOWER EXPRESSWAY	138,600	6,300 NB	3	5	8,930	0.71	C	12.0	157,900	6,800 NB	3	5	8,930	0.76	C	12.0
ILLINOIS ROUTE 64	138,600	6,300 SB	4	5	8,780	0.72	C	13.9	157,900	6,800 SB	4	5	8,780	0.77	C	13.9
O'HARE BYPASS	155,200	6,800	3	4	7,320	0.93	C	9.3	181,800	8,000	3	4	7,320	1.09	D	9.3
	188,000	8,500	3	4	7,350	1.16	D	8.8	215,200	9,500	3	4	7,350	1.29	E	8.8









[illegible]









Table B  
MODIFIED WIDENING PROGRAM  
Scenario 2  
Without O'Hare Bypass

TOLL ROAD AND SEGMENT	YEAR 2000							YEAR 2010								
	TWO-WAY ADT	DHV	EXISTING LANES	PROPOSED LANES	DIR. CAP.	V/C	LOS	PERCENT TRUCKS	TWO-WAY ADT	DHV	EXISTING LANES	PROPOSED LANES	DIR. CAP.	V/C	LOS	PERCENT TRUCKS
<b>SOUTH TRI-STATE</b>																
<b>CAULMET EXPRESSWAY</b>																
HALSTED ST.	122,600	5,700	3	4	6,840	0.83	D	17.0	143,000	6,300	3	4	6,840	0.92	D	17.0
WOOD ST.	117,400	5,400	3	4	6,840	0.79	D	17.0	138,000	6,100	3	4	6,840	0.89	D	17.0
DIXIE HIGHWAY	120,800	5,600	3	4	6,840	0.82	D	17.0	143,200	6,300	3	4	6,840	0.92	D	17.0
INTERSTATE 80	124,200	5,800	3	4	6,840	0.85	D	17.0	148,400	6,500	3	4	6,840	0.95	E	17.0
159TH STREET	98,600	4,600	3	4	6,840	0.67	C	17.0	119,800	5,300	3	4	6,840	0.77	D	17.0
127TH STREET	100,800	4,700	3	3	5,130	0.92	D	17.0	121,400	5,300	3	3	5,130	1.03	F	17.0
95TH STREET	107,800	5,000	3	3	5,150	0.97	E	16.5	134,000	5,900	3	3	5,150	1.15	F	16.5
79TH STREET	129,400	6,200	3	4	6,910	0.90	D	15.8	150,800	6,800	3	4	6,910	0.98	E	15.8
INTERSTATE 55 (E.B.)	118,800	5,700	3	4	7,020	0.81	D	14.0	140,800	6,400	3	4	7,020	0.91	D	14.0
	102,000	4,900	3	3	5,310	0.92	D	13.0	120,400	5,400	3	3	5,310	1.02	F	13.0
<b>CENTRAL TRI-STATE</b>																
JOLIET ROAD	157,600	7,000	3	4	7,130	0.98	E	12.2	181,400	7,600	3	4	7,130	1.07	F	12.2
ODGEN AVENUE	159,200	7,100	3	4	7,160	0.99	E	11.8	185,000	7,800	3	4	7,160	1.09	F	11.8
EAST-WEST CONNECTOR	122,600	5,500	3	4	7,160	0.77	D	11.8	139,600	6,000	3	4	7,160	0.84	D	11.8
CERPAK ROAD	129,600	5,700	3	4	7,020	0.81	D	13.9	148,600	6,200	3	4	7,020	0.88	D	13.9
ROOSEVELT ROAD	121,400	5,500	3	4	7,020	0.78	D	13.9	137,600	5,900	3	4	7,020	0.84	D	13.9
EAST-WEST TOLLWAY	131,000	6,000 NB	3	5	8,930	0.67	C	12.0	149,000	6,400 NB	3	5	8,930	0.72	C	12.0
	131,000	6,000 SB	4	5	8,780	0.68	C	13.9	149,000	6,400 SB	4	5	8,780	0.73	C	13.9
EISENHOWER EXPRESSWAY	123,000	5,400	3	4	7,320	0.74	C	9.3	142,400	6,200	3	4	7,320	0.85	D	9.3
ILLIGUIS ROUTE 64	141,800	6,400	3	4	7,350	0.87	D	8.8	162,600	7,200	3	4	7,350	0.98	E	8.8



IRVING PARK ROAD	172,800	7,200 NB	3	5	9,230	0.78	D	8.3	202,800	8,400 NB	3	5	9,230	0.91	D	8.3
	172,800	7,400 SB	4	5	9,190	0.81	D	8.8	202,800	8,400 SB	4	5	9,190	0.91	D	8.8
KENNEDY EXPRESSWAY																
NORTHWEST TOLLWAY	115,800	5,000	3	4	7,390	0.68	C	8.3	139,500	5,900	3	4	7,390	0.80	D	8.3
	157,800	6,600 NB	4	5	9,230	0.72	C	8.3	181,000	7,300 NB	4	5	9,230	0.79	D	8.3
	157,800	6,800 SB	3	5	9,270	0.73	C	7.9	181,000	7,600 SB	3	5	9,270	0.82	D	7.9
TOUHY AVENUE	137,400	5,900	3	4	7,410	0.80	D	7.9	157,200	6,700	3	4	7,410	0.90	D	7.9
DEMETER ROAD	99,800	4,700	3	3	5,560	0.85	D	8.0	117,800	5,300	3	3	5,560	0.95	E	8.0
NORTH TRI-STATE																
GOLF ROAD	116,800	5,600	3	4	7,370	0.76	C	8.5	138,800	6,400	3	4	7,370	0.87	D	8.5
WILLOW ROAD	107,400	4,800	3	3	5,500	0.87	D	9.0	131,800	5,900	3	3	5,500	1.07	F	9.0
EMENS SPR	137,000	6,100	3	4	7,240	0.84	D	10.5	167,200	7,200	3	4	7,240	0.99	E	10.5
DEERFIELD ROAD	117,200	5,100	3	4	7,170	0.71	C	11.5	143,600	6,100	3	4	7,170	0.85	D	11.5
ILLINOIS ROUTE 22	110,200	5,000	3	4	7,160	0.70	C	11.8	138,800	6,300	3	4	7,160	0.88	D	11.8
ILLINOIS ROUTE 60	104,600	4,800	3	3	5,360	0.90	D	12.0	133,000	6,100	3	3	5,360	1.14	F	12.0
ILLINOIS ROUTE 176	93,600	4,300	3	3	5,330	0.81	D	12.5	117,600	5,400	3	3	5,330	1.01	F	12.5
ILLINOIS ROUTE 137	83,600	3,700	3	3	5,290	0.70	C	13.5	104,800	4,600	3	3	5,290	0.87	D	13.5
ILLINOIS ROUTE 120	66,200	2,900	3	3	5,260	0.55	C	14.0	80,200	3,500	3	3	5,260	0.67	C	14.0
ILLINOIS ROUTE 21	70,200	3,100	3	3	5,220	0.59	C	15.0	85,800	3,800	3	3	5,220	0.73	C	15.0
ILLINOIS ROUTE 132	50,200	2,200	3	3	5,130	0.43	B	17.0	60,600	2,700	3	3	5,130	0.53	B	17.0
ILLINOIS ROUTE 173	45,200	2,000	3	3	5,130	0.39	B	17.0	54,000	2,400	3	3	5,130	0.47	B	17.0
EDWARDS ROAD																
NORTHWEST EAST																
KENNEDY EXPRESSWAY	117,700	5,400	3	3	5,700	0.95	B	5.2	120,600	5,600	3	3	5,700	0.98	E	5.2
TRI-STATE INTERCHANGE	163,300	7,100 EB	3	5	9,400	0.76	C	6.4	169,800	7,000 EB	3	5	9,400	0.74	C	6.4
	163,300	7,200 WB	4	5	9,380	0.77	C	6.6	169,800	7,600 WB	4	5	9,380	0.81	D	6.6
LEE STREET	147,300	6,500	3	4	7,500	0.87	D	6.6	150,000	6,700	3	4	7,500	0.89	D	6.6
ELMHURST ROAD	112,500	5,100	3	4	7,470	0.68	C	7.1	113,600	5,000	3	4	7,470	0.67	C	7.1





ARLINGTON HEIGHTS ROAD	108,500	4,900	3	4	7,480	0.66	C	7.0	113,400	5,000	3	4	7,480	0.67	C	7.0
INTERSTATE 290	112,500	5,400	3	4	7,410	0.73	C	7.9	127,200	5,900	3	4	7,410	0.80	C	7.9
POSELLE ROAD	93,100	4,600	3	4	7,390	0.62	C	8.3	105,400	4,900	3	4	7,390	0.66	C	8.3
BARRINGTON ROAD	62,100	2,900	2	3	5,450	0.53	B	10.0	74,200	3,300	2	3	5,450	0.61	C	10.0
ILLINOIS ROUTE 59	73,100	3,300	2	3	5,410	0.61	C	11.0	90,800	4,000	2	3	5,410	0.74	C	11.0
ILLINOIS ROUTE 25	63,900	2,900	2	2	3,540	0.82	D	13.0	77,600	3,400	2	2	3,540	0.96	E	13.0
ILLINOIS ROUTE 31	46,700	2,200	2	2	3,420	0.64	C	17.0	60,400	2,800	2	2	3,420	0.82	D	17.0
RANDALL ROAD	41,500	2,200	2	2	3,400	0.65	C	17.5	53,000	2,800	2	2	3,400	0.82	D	17.5
<b>NORTHWEST WEST</b>																
ILLINOIS ROUTE 47	35,300	1,800	2	2	3,390	0.53	B	18.0	44,600	2,100	2	2	3,390	0.62	C	18.0
U.S. ROUTE 20	36,300	1,800	2	2	3,360	0.54	B	19.0	50,400	2,400	2	2	3,360	0.71	C	19.0
GENOA ROAD	32,800	1,600	2	2	3,330	0.48	B	20.0	45,600	2,200	2	2	3,330	0.66	C	20.0
U.S. ROUTE 20 (S. ROCKFORD)	42,000	2,100	2	2	3,190	0.66	C	25.5	58,200	2,800	2	2	3,190	0.88	D	25.5
U.S. ROUTE 20 (BUS.)	36,800	1,800	2	2	3,190	0.56	C	25.5	51,200	2,500	2	2	3,190	0.78	D	25.5
EAST RIVERSIDE BLVD.	34,400	1,700	2	2	3,190	0.53	B	25.5	47,800	2,300	2	2	3,190	0.72	C	25.5
ROCKTON ROAD																
<b>EAST-WEST EAST</b>																
EISENHOWER EXPRESSWAY	81,700	4,100	3	3	5,690	0.72	C	5.5	82,900	4,100	3	3	5,690	0.72	C	5.5
TRI-STATE TOLLWAY	83,000	4,300	3	3	5,690	0.76	C	5.5	90,900	4,300	3	3	5,690	0.76	C	5.5
HAGER ROAD	85,500	4,400	3	3	5,690	0.77	C	5.5	94,700	4,500	3	3	5,690	0.79	D	5.5
EAST-WEST CONNECTOR	126,200	6,500	3	4	7,580	0.86	D	5.5	145,000	6,900	3	4	7,580	0.91	D	5.5
SPRING ROAD	127,500	6,500	3	4	7,580	0.86	D	5.5	149,000	7,100	3	4	7,580	0.94	E	5.5
ILLINOIS ROUTE 83	115,400	5,900	3	4	7,580	0.78	C	5.5	132,600	6,300	3	4	7,580	0.83	D	5.5
MIDWEST ROAD	114,200	5,900	3	4	7,550	0.78	D	6.0	133,400	6,700	3	4	7,550	0.89	D	6.0
HIGHLAND AVENUE	106,200	5,400	3	4	7,550	0.72	C	6.0	137,600	6,800	3	4	7,550	0.90	D	6.0
NORTH-SOUTH TOLLWAY	111,000	5,700	3	4	7,440	0.77	C	7.5	129,400	6,400	3	4	7,440	0.86	D	7.5



ILLINOIS ROUTE 53	90,200	4,600	3	3	3	5,560	0.83	D	8.0	110,600	5,500	3	3	5,560	0.99	E	8.0
NAPERVILLE ROAD																	
ILLINOIS ROUTE 59	73,200	3,800	3	3	3	5,530	0.69	C	8.5	94,200	4,700	3	3	5,530	0.85	D	8.5
FARNSWORTH AVENUE	49,800	2,600	2	2	2	3,670	0.71	C	9.0	67,400	3,300	2	2	3,670	0.90	D	9.0
ILLINOIS ROUTE 31	39,600	1,900	2	2	2	3,660	0.52	B	9.3	57,200	2,700	2	2	3,660	0.74	C	9.3
ORCHARD ROAD	32,400	1,600	2	2	2	3,660	0.44	B	9.3	43,600	2,000	2	2	3,660	0.55	C	9.3
ILLINOIS ROUTE 56	30,200	1,400	2	2	2	3,730	0.38	B	7.3	38,800	1,800	2	2	3,730	0.48	B	7.3
	18,000	800	2	2	2	3,730	0.21	A	7.3	21,800	1,000	2	2	3,730	0.27	A	7.3
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EAST-WEST WEST																	
ILLINOIS ROUTE 47	20,800	1,000	2	2	2	3,740	0.27	A	7.0	27,400	1,300	2	2	3,740	0.35	A	7.0
DEKALB EAST	17,800	800	2	2	2	3,760	0.21	A	6.5	19,600	900	2	2	3,760	0.24	A	6.5
DEKALB WEST	15,600	700	2	2	2	3,770	0.19	A	6.1	17,000	800	2	2	3,770	0.21	A	6.1
ROCHELLE, U.S. RTE. 51	16,400	800	2	2	2	3,290	0.24	A	21.7	18,600	900	2	2	3,290	0.27	A	21.7
ILLINOIS ROUTE 251	15,800	800	2	2	2	3,290	0.24	A	21.7	17,800	900	2	2	3,290	0.27	A	21.7
ILLINOIS ROUTE 26	16,000	800	2	2	2	3,290	0.24	A	21.7	18,600	900	2	2	3,290	0.27	A	21.7









